LISBON VALLEY MINING CO

PLAN OF OPERATIONS

Lisbon Valley Mining Company LLC
Lower Lisbon Valley Project

UTU-72499

Prepared By:
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1.0 Introduction

Lisbon Valley Mining Company, LLC (the Company) proposes to expand its current mining operations in San Juan County, Utah (**Figure 1-1**). Presently, the Company mines copper-bearing ore through open pit mining methods under a Record of Decision issued by the Moab Field Office of the Federal Bureau of Land Management in 1997. The Record of Decision, with File Number UTU-72499, is further supported by the Company's Large Mining Operation Permit with the Utah Division of Oil, Gas and Mining, which has the File Number M/037/0088, and the Company's Ground Water Discharge Permit with the Utah Division of Water Quality, which has the File Number UGW370005. The Company also maintains other permits as referenced in this Document. Under the existing mining permits, the Company open pit mines copper bearing ore which is stacked on the Company's existing double lined, heap leach facility where it is treated with low pH solution. Ore greater than three inches in size is segregated and crushed to minus three inches then is also stacked on the leach pad and treated with low pH solution. The resultant copper-laden solution is piped to various solution collection ponds for further processing. The copper-laden solution exiting the heap leach pad is segregated into high-concentration solution, called pregnant-leach solution (PLS), and low-concentration solution, called intermediate leach solution (ILS). The ILS is re-circulated back onto the heap leach facility, and the PLS is pumped from the solution collection pond to the process facilities, where it first undergoes a solvent-extraction beneficiation method. This method concentrates the copper into a copper sulfate in solution for final processing. The copper sulfate in solution is then sent to an electrowinning circuit where the copper is plated onto steel cathodes. The final product of the operation is 99.999% pure copper cathode.

The current Active Mining Plan Boundary, as defined by the 1997 ROD and NOI for LMO, is approximately 4,480 acres. Within that 4,480-acre Plan Boundary, the Company is approved for disturbance of up to **1,138 acres** (**Figure 1-2**).

The Company is proposing to expand operations into the area termed Lower Lisbon Valley (LLV), which is located southeast of the existing operations and is currently permitted for exploration activities. Under the Company's Plan of Operations as described in more detail below, the proposed expansion would include an LLV Plan Boundary encompassing approximately 5,430 acres (**Figure 1-3**). Presently, the Company performs exploration activities within the LLV Plan Boundary. Within the LLV Plan Boundary, the Company is approved for disturbance of up to **36 acres**. Within that 5,430-acre Plan Boundary, the Company would construct open pits, waste dumps, access roads, well fields, power lines, pipeline corridors, heap leach facilities, and ancillary supporting facilities. All beneficiation following the initial leaching would be performed in the Company's existing SX/EW Process Facilities and buildings.

2.0 Operator Information – 3809.401(b)(1)

2.1 Facility Name & Contact Information

Applicant & Company Representative

Name:	Lisbon Valley Copper Project
Signatory:	George Shaw Director & CEO
Physical Address:	920 South County Road 313 La Sal, Utah 84532

Mailing Address:	PO Box 400 Moab, UT 84532
Phone:	(435) 686-9950
E-mail:	gshaw@lvmholdings.com

Local Representative:	Alysen Tarrant, Environmental Manager Lisbon Valley Mining Company, LLC
Physical Address:	920 South County Road 313 La Sal, Utah 84532
Mailing Address:	PO Box 400 Moab, UT 84532
Phone:	(435) 686-9950
E-mail:	atarrant@lisbonmine.com

Registered Utah Agent

Name:	Lisbon Valley Mining Company, LLC
Registered Utah Agent:	Ken Garnett, Corporate CFO & Officer with Delegation of Authority 11 Edgewater Drive Old Greenwich, CT 06870
Phone:	(203) 249-4125
E-mail:	ken.garnett@gmail.com

2.2 Landowner Information

The proposed overall project (Active Mine Plan and LLV Plan) is within San Juan County, Utah. The coordinate system for the project is UTM NAD83, Zone 12. The Public Land Survey System for the project is the Salt Lake Base & Meridian. The project will occur within all or portions of:

Sections 22, 23, 24, 25, 26, 27, 34, 35, and 36 of Township 30 South, Range 25 East, SLBM;

Sections 1 and 12, Township 31 South, Range 25 East, SLBM;

Sections 30, 31, and 32, Township 30 South, Range 26 East, SLBM;

Sections 4, 5, 6, 7, 8, 9, 10, 11, 14, 15, and 16, Township 31 South, Range 26 East, SLBM.

The proposed overall project would encompass 9,910 acres of land. **Table 1-1** details the land ownership designation within the proposed overall project:

Table 2-1: Land Ownership Designation Within the Proposed Overall Project

Plan	Total	Private	BLM	SITLA
Active Plan Boundary	4,480	495	3,348	637
LLV Plan Boundary	5,430	1,175	3,199	1,056
TOTAL	9,910	1,670	6,548	1,692

2.2.1 Surface Landowners:

- Lisbon Valley Mining Company, LLC
  PO Box 400
  Moab, UT 84532
  435-686-9950

- Bureau of Land Management (BLM)
  Moab District Office, 82 East Dogwood
  Moab, UT 84532
  435-259-2100

- State of Utah, School and Institutional Trust Lands Administration (SITLA)
  675 East 500 South, Suite 500
  Salt Lake City, UT 84102
  801-538-5100

2.2.2 Mineral Owners:

- Lisbon Valley Mining Company, LLC
  PO Box 400
  Moab, UT 84532
  435-686-9950

- Bureau of Land Management (BLM)
  Moab District Office, 82 East Dogwood
  Moab, UT 84532
  435-259-2100

- State of Utah, School and Institutional Trust Lands Administration (SITLA)
  675 East 500 South, Suite 500
  Salt Lake City, UT 84102
  801-538-5100

- Steve & Mary Lou Kosanke (or next of kin)
  PO Box 116
  Bluff, Utah 84512

- Lisbon Copper Ltd.
  C/O Burton Kunkel (or next of kin)
  980 S Main St
  Willard, UT 84340

- Tintic Uranium
  % Ronny Cutshall
  1309 S Penn St
  Salt Lake City, UT 84105

- JF and Joyce Costanza (or next of kin)
  3221 Rimrock Rd
  Moab, UT 84535

- Boyd C Brinton
  677 Holiday Drive
  Brigham City, UT 84302

- Suzanne Brinton Strong, % Greg Strong
  3737 Melinda Ln
  Millcreek, UT 84109

- Marva K Loebe
  2 Lakeshore Dr.
  Salem, SC 29676

- Carole L Steel (or next of kin)
  3311 Creekridge County Rd
  Randleman, NC 27317

- Mike & Joan Wilcox (or next of kin)
  2430 Lisbon Valley Rd
  La Sal, UT 84530

2.3 Claim & Lease Information

Table 2-1 below shows the list of claim and lease information within the Active Mine and LLV Plan area. As shown in Section 2.3 above, the landownership in the area is a mixture of private, state, and public lands.

Table 2-2: Surface & Mineral Lease Information for the Active Mine and LLV Plan Area

Ownership	Contract type	Identification	Description
Federal BLM	BLM File	UTU77879	BLM File Number
State SITLA	Lease	ML 17661	Section 36 30S / 25E
State SITLA	Lease	ML 20569	Section 36 30S / 25E
State SITLA	Lease	ML 53127	Section 32 30S / 26E
State SITLA	Lease	ML 53430-OBA	Section 16 31S / 26E
BLM	Unpatented Claims	Multiple	
Private	Lease	Wilcox Surface Lease	
Private	Lease	Hawks Surface Lease	

3.0 Description of Operations – 3809.401(b)(2)

Current Operations

The Company is a privately-owned limited liability corporation in the business of mining and beneficiation of copper-bearing ore. The Company owns and operates a copper mine and associated process facilities

in San Juan County, Utah (Figure 1-1). The Company obtained ownership of the Lisbon Valley Copper Project (the Project) in 2009. Prior to that, the Project was operated by Constellation Copper Corporation, who declared bankruptcy in 2008.

The Company has operated the Project since it obtained ownership in 2009. Operations include the creation of open pits and/or the expansion of existing open pits to extract copper-bearing ore. The construction of open pits involves blasting of the ore and waste material. The waste material is hauled to existing waste dumps, or is used to backfill existing pits. The ore is hauled to the existing heap leach facility where it is stacked in 10-15 foot lifts. Ore greater than three inches in size is segregated and crushed to minus three inches then also stacked on the heap leach facility. Copper is extracted from the ore by use of low pH leaching. The resultant copper-bearing solution is then sent to the process facilities where it undergoes solvent extraction and electrowinning (SX/EW) processing. The final product is copper cathode of a 99.999% purity. Detailed information about the mining and beneficiation processes can be found in the Company's Notice of Intent (NOI) for Large Mining Operations (LMO) filed with the Utah Division of Oil, Gas and Mining (DOGM).

The Company operates the current open pits and facilities under a number of environmental permits with Local, State, and Federal agencies. Table 3-1 below is a summary of all environmental permits applicable to the Plan area.

Table 3-1: Environmental Permits held by the Company for the mining and beneficiation of copper ores

Issuing Agency	Permit or License	Status
Federal Bureau of Land Management Moab Field Office	Record of Decision for Large Mining Activities (UTU-72499)	Approved for LVMC; modification in process for LLV expansion
	Lower Lisbon Valley Exploration Plan of Operations (UTU-77879)	Approved; annual reporting & disturbance updates ongoing
US EPA Region 8	Aquifer Exemption (Class III Wells)	In Process
	RCRA Small Quantity Generator (UTR000008672)	Approved and in good order
Utah Department of Environmental Quality	NPDES Industrial Stormwater Permit (UTR00737)	Approved for LVMC; modification in process for LLV expansion
	Class III UIC Permit	Approved for LVMC; still in process with US EPA Region 8
	Class V UIC Permit	Approved for LVMC. No changes needed
	Ground Water Discharge Permit (UGW370005)	Approved for LVMC; modification in process for LLV expansion
	Approval Order for Emissions Source (DAQE-AN114620014)	Approved for LVMC; modification in process for LLV expansion
Utah Department of Natural Resources	Large Mining Permit (M/037/0088)	Approved for LVMC; modification in process for LLV expansion

Issuing Agency	Permit or License	Status
	Reclamation Contract (M/037/0088)	Approved for LVMC; modification in process for LLV expansion
	Exploration Permit (E/037/0115)	Approved; annual reporting & disturbance updates ongoing
	Water Rights 05-2593; 05-762	Approved and in good order
San Juan County	Conditional Use Permit	Approved for LVMC; in process for LLV expansion
	Building Permit	Approved for LVMC; in process for LLV expansion

Proposed Operations

The Company is proposing to expand the current operations of open pit mining and beneficiation within the LLV Plan Boundary, as well as initiate the extraction of copper through an in-situ recovery (ISR) process. The LLV Plan Boundary is currently permitted for exploration and has been operated in that fashion since 2009. The proposed activities that would occur within the LLV Plan Boundary, in addition to ongoing exploration, would include the following components, the disturbances of which are summarized in Table 3-2 below:

- Open pits;
- Waste rock storage (WRS);
- Storm water diversion channels, sediment basins, and berms;
- Heap leach pad (HLP);
- Solution pipelines;
- Access roads;
- ISR Wellfields (injection wells, pump-back wells, monitor wells);
- Exploration activities; and
- Ancillary facilities including: power supply; reagent, fuel, ready line; crushing area and related stockpiles; area for temporary storage of petroleum-contaminated soils; ground water monitoring wells; water supply pipeline and facilities; and construction laydown yards.

Table 3-2: Anticipated Disturbance for the LLV Proposed Action

Mine Component	Total Disturbance	Private	BLM	SITLA
Roads (acres)				
Mine Haul Roads	80.1	15.4	44.5	20.2
Road Berms & Fill	31.1	8.4	10.8	11.9
Light Vehicle Access Roads	18.5	1.8	15.0	1.7
ISR Well Roads	40.5	19.8	11.3	9.3
ISR Well Pads	16.5	8.1	4.6	3.8
Subtotal	**186.7**	**53.5**	**86.3**	**46.9**
Leach Pad, Mine Pit, Waste Rock Dump, Borrow Area, Ponds, Stockpiles (acres)				
A Dump WRS	135.1	-	87.7	47.4

Mine Component	Total Disturbance	Private	BLM	SITLA
B Dump WRS	100.6	-	-	100.6
C Dump WRS	258.0	-	258.0	-
Lone Wolf WRS	54.6	-	54.6	-
Centennial Pit (un-backfilled)	101.8	-	97.2	4.6
Centennial Backfill Area	141.4	-	35.1	106.3
GTO Pit	48.0	-	6.4	41.6
Lone Wolf Pit (un-backfilled)	72.4	-	72.4	-
Lone Wolf Backfill Area	362.8	10.5	336.3	16.0
LVM Leach Pad	321.4	174.1	147.3	-
LLV Leach Pad	141.3	132.6	8.7	-
LVM Process Area	33.3	8.7	24.6	-
LVM Process Ponds	29.8	29.8	(0.0)	-
LLV Process Ponds	43.8	29.9	10.1	3.8
Fresh Water Ponds	21.3	5.5	7.7	8.1
Growth Media Stockpiles	133.7	10.4	99.3	24.0
LP Capping Borrow Material	17.2	16.7	0.5	-
Subtotal	**2,016.5**	**418.2**	**1,245.9**	**352.4**
Yards (acres)				
Admin Area	5.1	-	5.1	-
Crusher Yard	52.3	43.7	8.6	-
Laydown Yards	11.0	4.2	6.8	-
Equipment Lineup & Truckshop	10.4	-	10.4	-
Yards Subtotal	**78.8**	**47.9**	**30.9**	**-**
Linear Features (acres (see project notes))				
Drainage Control Features	63.5	17.8	36.1	9.6
Natural Gas Line Re-Route	2.4	-	1.8	0.6
Ore Conveyor	2.0	1.2	0.8	-
Solution Pipeline	16.7	5.7	8.0	3.1
Subtotal	**84.6**	**24.7**	**46.7**	**13.3**
Project Total	**2,366.7**	**544.3**	**1,409.8**	**412.6**

PROJECT NOTES

Haul Road Width (ft)	100
Light Vehicle Road Width (ft)	30
Ore Conveyor width (ft)	15
ISR Well Road Width (ft)	20
ISR Well Pad square footage	900
Solution Pipeline corridor Width (ft)	20
Average Drainage Control Width (ft)	100
Natural Gas Line Re-route width (ft)	10

The Proposed Operation has an anticipated mine life of approximately 20 years.

Of the anticipated disturbance, only a fraction would be considered permanent. Table 3-3 summarizes the proposed disturbances by anticipated duration:

Table 3-3: Anticipated Disturbance Duration for the LLV Proposed Action

	Total Disturbance Acres	Temporary (1)	Short Term (2)	Long-Term (3)	Permanent (4)
Mine Haul Roads	80.1	0.0	80.1	0.0	0.0
Road Berms & Fill	31.1	0.0	31.1	0.0	0.0
Light Vehicle Access Roads	18.5	0.0	0.0	18.5	0.0
ISR Well Roads	40.5	0.0	32.4	8.1	0.0
ISR Well Pads	16.5	0.0	11.6	5.0	0.0
A Dump WRS	135.1	0.0	135.1	0.0	0.0
B Dump WRS	100.6	0.0	100.6	0.0	0.0
C Dump WRS	258.0	0.0	258.0	0.0	0.0
Lone Wolf WRS	54.6	0.0	54.6	0.0	0.0
Centennial Pit (un-backfilled)	101.8	0.0	0.0	0.0	101.8
Centennial Backfill Area	141.4	0.0	141.4	0.0	0.0
GTO Pit	48.0	0.0	0.0	0.0	48.0
Lone Wolf Pit (un-backfilled)	72.4	0.0	0.0	0.0	72.4
Lone Wolf Backfill Area	362.8	0.0	362.8	0.0	0.0
LVM Leach Pad	321.4	0.0	321.4	0.0	0.0
LLV Leach Pad	141.3	0.0	141.3	0.0	0.0
LVM Process Area	33.3	0.0	33.3	0.0	0.0
LVM Process Ponds	29.8	0.0	0.0	26.8	3.0
LLV Process Ponds	43.8	0.0	0.0	39.4	4.4
Fresh Water Ponds	21.3	0.0	0.0	0.0	21.3
Growth Media Stockpiles	133.7	0.0	133.7	0.0	0.0
LP Capping Borrow Material	17.2	0.0	17.2	0.0	0.0
Admin Area	5.1	0.0	0.0	5.1	0.0
Crusher Yard	52.3	0.0	52.3	0.0	0.0
Laydown Yards	11.0	0.0	11.0	0.0	0.0
Equipment Lineup & Truckshop	10.4	0.0	10.4	0.0	0.0
Drainage Control Features	63.5	0.0	0.0	0.0	63.5
Natural Gas Line Re-Route	2.4	0.0	0.0	0.0	2.4
Ore Conveyor	2.0	0.0	2.0	0.0	0.0
Solution Pipeline	16.7	0.0	0.0	16.7	0.0
TOTAL	2,366.7	-	1,930.3	119.6	316.8

(1) Temporary: any disturbance with an anticipated duration of less than the duration of the Project
(2) Short-Term: any disturbance that would last for the duration of the Project
(3) Long-Term: any disturbance that would last for a period following reclamation of the Project
(4) Permanent: any disturbance that would be permanent

As seen in Table 3-3, the overall long-term and permanent disturbance anticipated to occur as an effect of the Proposed Action is less than approximately fourteen percent, with the remaining eighty-six percent of land not planned for permanent disturbance.

The anticipated permanent disturbance which would occur on public lands is approximately 206 acres (170 acres of permanent disturbance related to open pit high walls, and 36 acres of permanent disturbance related to diversion channels and overflow ponds).

No disturbance related to the ISR activities is anticipated to be permanent.

3.1 Maps

3.2 Operating Plan & Process Design

The Operating plan for the Proposed Operations is as follows:

The Company will continue to extract the remaining copper resources in the current open pits within the Active Mine Plan Boundary. The open pits within the Active Mine Plan Boundary have an existing extractable resource of 82 million recoverable copper pounds (as of December 31, 2022). The life of mine (LOM) of the open pits within the Active Mine Plan Boundary is estimated to be approximately four years depending on mining rate (LVMC ARO 2022). The LVM HLP is approved for an additional expansion through the existing 1997 ROD. This expansion will be performed to allow all ore from the Active Mine open pits to be stacked on the LVM HLP.

As the open pit mining activities continue within the Active Mine Plan Boundary, the Company will initiate construction of the LLV facilities. This construction phase is anticipated to last anywhere from 6-12 months, and will include the construction and installation of the following facilities:

- HLP lined containment and solution ditches;
- Process ponds;
- Water lines;
- Solution lines;
- Installation of additional monitor wells;
- Ancillary facilities; and
- Improvement of access roads;

Also, the Company will install the first injection and production wells for the commencement of the pilot test for the ISR in the GTO pit area (Figure 3-1, Figure 3-3). This disturbance will occur within the Active Mine Plan Boundary for the most part once the Company is fully authorized to proceed with the ISR project.

The pilot test for the GTO ISR will be a solution-injected lixiviant and will be performed based on the data gained by the Company through its Class V UIC tracer testing program. The pilot test for solution lixiviant is anticipated to last approximately one year. At the end of the pilot test, the data derived will be used to fine-tune the installation of the ISR wellfields in the GTO area. The installation of the ISR wellfields would occur in conjunction with open pit mining operations. The Lone Wolf ISR will be rolled out in similar fashion.

Topsoil removal related to the construction activities is anticipated to be stored in designated topsoil stockpiles, with the exception of the ISR wellfields and roads, which will have windrows of topsoil along the roads and pad extents. A soils survey and characterization of soil types and depth is scheduled to be performed as part of this Plan of Operations. The results of the soil survey will direct the Company in the depth of soil that is salvageable, and also the type of soil that is being salvaged and thus build an appropriate interim seed mix for seeding the topsoil stockpiles during their existence for the extent of the life of the operations.

Open Pit Mining (Figures 3-3, 3-5)

Open pit mining is anticipated to occur in only one open pit within the LLV Plan Boundary. This pit, called the "Lone Wolf Pit", has an estimated mineable resource of 60 million tons, containing 267 million pounds of recoverable copper. The mine design for the Lone Wolf pit would utilize a small waste dump for the initial removal of overburden, with the remaining waste used to backfill the pit as mining is phased. The anticipated amount of overburden to be removed and stockpiled in a WRS facility is 20 million tons. The anticipated amount of overburden to be used to backfill the Lone Wolf Pit is 228 million tons. The amount of material to be backfilled is largely dependent upon the geochemistry of the rock types encountered, as summarized in the Company's Waste Rock Management Plan and Geochemistry Environmental Resource Report.

As is currently employed within the Active Mine Plan Boundary, open pit mining will be performed by conventional open pit mining methods. Ore and waste are drilled, blasted, loaded and hauled by front end loaders and haul trucks. Ore will then be stockpiled at a crushing facility, where the ore will be crushed to minus 3 inch. The ore will then be conveyed via overland conveyor and stacked directly on the LLV HLP following strict ore control procedures. The mine operates on a schedule of one or two 12-hour shifts per day, seven days per week, and 52 weeks per year depending on market conditions and mine plan. The Company's equipment fleet will be sized to meet a production rate of up to 100,000 tons per day.

Waste from the mining activities are either placed as in-pit backfill, or hauled to designated Lone Wolf WRS facility. The waste is categorized by geologic bed, which is then correlated to the Company's comprehensive database of geochemical properties for the different geologic beds that occur within the localized geographical region. The type of waste that is encountered during active mining is segregated by bed and geochemical properties and placed in the appropriate location per the Company's existing Waste Rock Management Plan.

Ore from the LLV mining activities is conveyed and stacked on the LLV HLP. The Company has an existing LVM HLP with capacity to contain all ore projected to be mined from the Active Mine Plan Boundary.

Additional ore extracted from the Lone Wolf Pit will be placed on the newly constructed LLV HLP within the LLV Plan Boundary. Solution from the treatment of the ore on the LLV HLP will be stored in designated process ponds where the solution will either be recycled back onto the LLV HLP (as ILS) or piped to the existing process facilities for final beneficiation (as PLS).

As with the construction phase, initial disturbance related to the open pit, WRS, HLP, and associated ponds will include the removal and storage of topsoil in designated topsoil stockpiles.

ISR (**Figures 3-4, 3-6, 3-7**)

ISR activities will include the construction of access roads and well pads. The well pads will be constructed in an orthogonal or hexagonal pattern in which one injection well is surrounded by four to six production wells. An extension of this pattern develops a wellfield with approximately equal numbers of injection and extraction wells. Wells will be spaced 100-200 feet apart. Each well pad will have an estimated disturbance footprint of 50 feet by 50 feet. This disturbance would be temporary for the installation of the well and piping only. After the wells are drilled and installed, the pads would be reclaimed back to a size of 30 feet by 30 feet. Access roads would have an average width of 20 feet for standard roads, and 40 feet for roads with solution pipelines.

The Company projects construction of approximately 1,700 well pads spaced approximately 125-200 feet apart, with each alternating row of well pads offset laterally by an additional 50-75 feet in order to create the 'five-spot' pattern targeting copper recovery from the GTO and Lone Wolf copper deposits.

Also included with the proposed ISR project for GTO and Lone Wolf Extent would be the installation of monitor wells. The disturbance associated with the installation of the monitor wells would be similar to the well pads in initial and final disturbance footprints.

The location of the ISR well pads would be as follows:

- GTO Well Field = 150 well pads
- GTO Infill & Monitor Wells = 10 well pads
- Lone Wolf Well Field = 600 well pads
- Lone Wolf Infill & Monitor Wells = 40 well pads

Based on exploration drilling that has occurred within the LLV Plan Boundary, as well as the information known already about the GTO ore extent, the Company has engineered extractible resource estimates through the use of ISR technology. Additionally, the Company has performed numerous successful metallurgical studies on the projected recovery of the in-situ copper resource. The Company estimates the combined ISR extractable resource of the GTO and Lone Wolf deposits of +271 million pounds of recoverable copper.

Ancillary Facilities & Vehicle Maintenance

Due to the Company's existing onsite facilities, minimal disturbance related to ancillary facilities and workshops for vehicle maintenance is anticipated. The Company plans on using all of its existing buildings and its SX/EW plant for the duration of the LLV LOM. The Company anticipates expanding the existing Solvent Extraction unit an additional cell, which would have an overall footprint of less than one acre, and would be installed adjacent to the already-existing Solvent Extraction cells.

Exploration

As mining continues by open pit and ISR methods, exploration will continue within the LLV Plan Boundary. Exploration activities would concur with the existing Exploration Plan.

3.2.1 Copper Resource for Proposed Action

The Proposed Action is based on the Company's Resource Statement for the Lisbon Valley Copper Mine and Lower Lisbon Valley Copper Deposits. Included in the Resource Statement are projected recovery rates of the copper from heap leaching and ISR. The recovery rates are based upon multiple years of metallurgical studies, as well as life-of-mine recovery rates of the existing HLP as it has been tracked since 2006. Table 3-4 summarizes the Resource & Reserve Statement for the Proposed Action:

Table 3-4: Resource & Reserve Statement for the Proposed Action

Resource Type	Total Contained Copper (,000,000 lbs Cu)	Recovery (%)	Recoverable Reserve (,000,000 lbs Cu)
Existing LVMC HLP Inventory	56	50%	28
Centennial & GTO Pits	67	80%	54
Lone Wolf Open Pit	336	79%	267
GTO ISR	80	56%	45
Lone Wolf ISR	435	52%	226
TOTAL	**974**		**620**

The Proposed Action allows for the most amount of copper to be extracted in the most streamlined overall timeline, while utilizing the resource as efficiently as feasible. As the nation is increasing its demand for copper to support green energy initiatives, ensuring the most amount of copper is produced and used in a timely manner within the United States of America is integral.

3.3 Water Management Plan

The Company maintains a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the Utah Pollutant Discharge Elimination System (UPDES) Permit UTR 000737 and UPDES General Multi-Sector General Permit (MSGP). The MSGP authorizes storm water discharges related to Industrial Activities, Group 3, Sector G (Metal Mining). The Operation is and will continue to be considered an "Active Metal Mining Facility" (AMA) under the MSGP, and subject to Pollution Prevention Plan Requirements.

The SWPPP describes pollution prevention and control practices designed to minimize the contact of storm water with "significant materials", and thereby avoiding impacts, or otherwise manage water after such contact, so there is no discharge.

The Company avoids impacts to surface water systems through implementation of best management practices (BMP) in accordance with the SWPPP. BMPs are developed to minimize the potential for non-point source pollution to surface waters.

BMPs include both structural and non-structural controls. Structural controls include:

- Diversion
- Retention

- Erosion and Sediment Control
- Stabilization
- Energy Dissipation
- Structural control methods are implemented to site conditions, and modified as site conditions change with on-going mine development. These include:
- Diverting runoff away from roads and other denuded areas by using berms, ditches, and other functionally equivalent diversions.
- Preparation of road drainages and outlets by removing fugitive outfalls and consolidating runoff into designed outfall structures that are capable of managing the expected runoff volume.
- Reducing runoff velocities by using energy dissipation devices and minimizing grade.
- Trapping sediment on-site in sediment ponds, sumps, and other functionally equivalent structural controls.
- Capturing runoff, when practical, to eliminate the potential for storm water discharges.
- Maintaining redundant, standby power supply.

Diversion channels and retention ponds comprise the primary structural controls, and will continue to do so during the planned disturbance within the LLV Plan Boundary.

The ephemeral drainages within the LLV Plan Boundary are considered Waters of the US, as they connect directly to the Dolores River, a navigable water body. The Company will seek input from the Army Corps of Engineers with regard to the proposed diversion channels and best management practices as they relate to surface water control features.

Non-structural controls include maintenance, spill prevention & response, inspections, training, and record keeping. These controls are detailed in Section 3.5 below.

Open Pit Mining

As open pit mining progresses within the LLV Plan Boundary, diversion channels will be constructed in order to divert precipitation runoff away from the proposed pit, WRS, HLP, and ponds, together representing the LLV mining area. The Company has recently completed a detailed survey of the LLV Plan Boundary, and generated watershed maps for the areas of proposed activities. Using this data, the Company will construct diversion channels and catchment basins in adequate size and frequency in order to ensure no runoff of precipitation from the active mining area would go beyond the mine boundary.

The LLV Plan Boundary is arid in nature, with net evaporation rates of 61.56 inches per year (Newfields, 2021). The arid climate in which the project is located lends itself to low amounts of precipitation and high evaporation rates. This climate also accounts for the lack of perennial streams or seeps at or near the project area. That said, major drainage re-routes will be performed, as detailed in the Surface Water Environmental Resource Report. Moreover, as water is seen as a necessary commodity for the operation, the Company will strive to store any and all precipitation that is intercepted within the active mining area in order to put it toward beneficial use such as dust control and beneficiation activities.

Where roads cross drainages with the potential to carry significant amounts of precipitation during major storm events, culverts will be installed as a means to mitigate runoff and prevent washouts of roads. The culverts will be sized appropriately to ensure an uninterrupted flow of water during major storm events.

ISR

As disturbance related to ISR is composed of roads and pads, no management of water intercepting the well pads is planned. If necessary, the sumps used during the initial installation of the wells may remain in-place as storage for precipitation encountered during the operation of the wellfields. For the most part, the well pads and roads will conform with existing topography. If any roads are required that would cross major drainages, culverts would be installed of adequate size to allow passage of water during storm events. No drainages are anticipated to be re-routed by ISR disturbance activities.

Solution Pipelines

Solution pipelines for both the solution from the LLV HLP and the solution from the ISR wellfields will be above-ground pipelines and will be installed with emergency shutoff systems spaced on adequate intervals. Instrumentation and control systems will be utilized throughout the entirety of the pipeline system which will rapidly detect any potential pipeline leaks or spills.

3.4 Rock Characterization & Handling Plan

As described in Section 2 above, the Company has a comprehensive Waste Rock Management Plan. This plan will be applied to the material mined during open pit mining of the Lone Wolf pit.

As no rock is extracted via ISR methods, rock characterization and handling is not applicable.

3.5 Quality Assurance Plan

The Company will continue to implement BMPs where practicable within the LLV Plan Boundary. Along with the BMPs listed below, this also includes the commitment of performing concurrent reclamation where feasible within the Active Mine Plan Boundary as mining closes in the Active Mine Plan Boundary and continues in the LLV Plan Boundary. Other concurrent reclamation activities such as the interim seeding of topsoil stockpiles, reduction of surface disturbance of ISR well pads, would also be employed.

Beyond the closure and reclamation of activities within the Active Mine Plan Boundary, and concurrent reclamation within the LLV Plan Boundary, the following measures and controls that will be utilized within the LLV Plan Boundary include such BMPs as:

Good Housekeeping

Good housekeeping BMPs generally refer to ongoing or regular practices that ensure that areas of the facility with a potential to contribute pollutants to storm water are kept clean and orderly. The following good housekeeping practices will be implemented as indicated below:

- Litter is controlled through employee awareness, the use of multiple trash receptacles, and frequent cleanup. A closed trailer is used to store trash until it is transferred to the on-site landfill. New employees are instructed in litter control as part of their initial training. Any wind-blown litter and other debris at the facility are routinely removed.
- Major repairs to, and servicing of vehicles, are conducted at the closed shop building (Truck Shop) located within the existing Active Mine Plan Boundary. Oils are drained prior to servicing using an evacuation system to minimize the opportunity for spills. Used oil is transferred directly from the equipment to a truck-mounted holding tank and transported off-site by a local recycling company.

Drip pans and pads are used to absorb small quantities of liquids. A spill maintenance kit is maintained on site and employees are trained in its use, should a spill occur. Any fluids leaking from equipment will be contained. Collected fluids will be discarded or reused in accordance with applicable state and federal regulations. Any fluids that are spilled will be immediately cleaned up and reported as outlined in the Company's Spill Prevention Control and Countermeasures (SPCC) Plan.

- Fueling of vehicles and mobile equipment is conducted using a locking "quick coupler" with an automatic shut off valve to reduce the potential of spills. Fuel tanks are enclosed in metal or concrete containers. A person remains with the vehicle or equipment during fueling in case of an emergency. Absorbents or other clean up materials are available to ensure that any spills are quickly cleaned up.

Sediment & Erosion Control

- Water draining into the pits stay in the pits.
- All topsoil piles are bermed.
- The ore piles are within a bermed area.
- Active waste dumps are bermed along their rims, and have a native vegetation area at their bases to capture run-off, sediment, loose rock, etc.
- Water falling on or flowing down roads drains toward the pits, or toward the turn-outs managed to hold storm water runoff.
- Water falling or flowing on hardened surfaces and facilities areas either infiltrates or collects in sumps, where it evaporates or infiltrates.
- All solvents used in the beneficiation process are contained within a lined and/or concrete area that does not allow for contamination to outside areas.
- Erosion controls will be inspected monthly over the mine area to ensure that they are functioning correctly. Any observed condition requiring maintenance will be attended to immediately.

Preventative Maintenance

Vehicles, equipment, and machinery are maintained in good working condition to minimize the likelihood of discharging fluids. They are serviced on a regular schedule as appropriate. The maintenance intervals and the inspections or work performed are specific to that piece of equipment.

All access roads are topped with a 12-inch to 16-inch layer of road base derived from overburden rock to minimize fugitive dust generation and sedimentation from roads. Active mine roads all drain to either turn-outs or pits via a system of ditches. Ditches are maintained in good condition to reduce erosion and to minimize the amount of sediment transported by storm water.

Spill Prevention and Response Procedures

Filling and emptying of storage tanks and oil drums, as well as the fueling of equipment and material handling, represent the largest potential sources of liquid spills at the facility. Spill cleanup equipment and materials are kept on-site. This equipment includes bulldozers or loaders, absorbent materials, and catch basins or drip pans for leaks. Each person that operates equipment, or is responsible for transferring diesel fuel or oil between vessels, will be trained on spill prevention and response.

In the event of a spill or leak, the following action will be taken:

- The person who discovers the spill will stop the spill or leak at the source, if it is safe to do so. They will contain the spread or migration of the spill by using spill response equipment or by building dirt containment berms.
- The person will then notify the supervisor and the Company's environmental manager or site supervisor.
- The supervisor will report the spill in accordance with the internal reporting procedure outlined in the Company's SPCC.
- Any contaminated soils will be cleaned up and properly disposed of in accordance with state and federal regulations.
- Follow-up investigation will be conducted to determine the cause of the spill, evaluate the Operator's response, and determine if any measures need to be implemented or adjusted.

Inspections

Monthly inspections are and will continue to be performed within all active mine areas. The inspections will include visual inspections of all BMPs in all active areas to ensure that they are operating as intended. The following areas are covered:

- Erosion and sediment control measures are observed to ensure they are operating correctly, such as ditches, sumps, sediment fabric, etc.
- Any evidence of excessive erosion or sedimentation is identified and scheduled for repair.
- Material handling and storage areas are inspected for signs of erosion.
- Crushing equipment, vehicles, and obsolete or unused equipment are inspected to ensure that they are in good condition and are not leaking any fluids.
- Maintenance areas are inspected to ensure that fluids are properly stored within the maintenance shops.

Employee Training

Employees who are responsible for implementing activities identified in this Plan are responsible for aspects of ensuring quality assurance and control. Training occurs on an annual basis with each session occurring no later than 12 months after the previous year's training. This training consists of the components of the quality assurance plan and on the trainee's respective responsibilities under the plan. Additional training topics include spill prevention and response, fueling practices, good housekeeping, and equipment wash down procedures, identification of potential storm water pollution-related issues, and material management practices.

New employees are trained in storm water pollution prevention within one week of their start date. This training consists of:

- A description of the quality assurance plan and its goals;
- Education on surface disturbance and storm water pollution prevention;
- BMPs that may affect the group or an individual employee;
- Spill prevention and response;
- Question and answer; and,
- Other topics considered pertinent during each session.

The training program is reviewed annually and modified as necessary to meet facility conditions.

3.6 Spill Contingency Plan

The Company has an in-place SPCC for the mining and beneficiation performed within the Active Mine Plan Boundary. This SPCC will be applied to the proposed activities within the LLV Plan Boundary. The SPCC includes actions taken for spill response, spill cleanup, disposal procedures, and follow-up response actions:

Spill Cleanup Procedures

- If a large spill occurred or the spill reached a waterway, call a cleanup contractor and they will provide additional equipment to clean up the spill.
- DO NOT use water to clear the spill away! Water will mobilize the spill and require additional cleanup efforts.
- Pick up free liquid that has collected in sumps or containment areas with absorbent material. Place free liquid that has been collected in a tank or drums for temporary storage.
- Clean up liquid that has spread over a non-porous surface with absorbent material such as oil-dry or absorbent socks or booms. Collect oil-soaked cleanup materials (*e.g.,* oil-dry, absorbent socks, or booms) and place them in leak-proof containers.
- For spills on gravel or soil, absorb as much of the liquid as possible with absorbent material and then excavate the oil-contaminated gravel or soil down to visibly clean material. Place the excavated material in piles for temporary storage.

Disposal Procedures

An oil spill is not considered cleaned up until all waste produced during the cleanup activities are properly disposed. General guidelines are listed below; however, the exact means of disposal will depend on the nature and volume of contaminated material and whether the material is contaminated with other substances.

- Liquid oil that has been collected should be recycled at an offsite facility, if possible, or disposed of at a regulated and licensed facility.
- Ship oily soil that has been excavated to a landfill or land farm that is permitted to dispose of or treat oil-contaminated soil.
- Dispose of oil-soaked absorbent material in a landfill permitted for this type of industrial waste.

Follow-up Response Actions

Follow-up response actions include conducting an investigation as needed to:

- Determine the cause of the spill;
- Review the response actions that were taken to identify any improvements for response to future incidents; and,
- Determine if any measures need to be implemented to prevent another spill.
- Revise this SPCC Plan to reflect any changes at the facility or in operating procedures that result from an evaluation of the spill.
- Replace all spill cleanup equipment that was used during the cleanup of the spill.

ISR Wellfields & Solution Pipelines

Wellfield features such as header houses, well heads or pipelines could contribute to the pollution in the unlikely event of a release of ISR or HLP solution due to pipeline or well failure. Potential impacts would be minimized by routine maintenance checks of all injection, production, and monitor wells, and hydrostatic leak testing of all pipelines during construction; implementing an instrumentation and control system to monitor pressure and flow and immediately detect and correct any anomalous condition; and implementing a spill response and cleanup program in accordance with State and Federal regulations.

Any release of solution will be contained within the lined pipeline trench or within double-walled pipelines and will report to the nearest process pond. Any breach of the pipeline will be mitigated using sand bags. Contaminated soils from solution will be handled in accordance with the Company's SPCC.

3.7 Schedule of Operations

The Operations will have the following approximate timeline:

1. Continue open pit mining and beneficiation within the Active Mine Plan Boundary: present – 2026
2. Initiation of installation of GTO pilot test well array: Q1, 2025
3. Initiation of construction activities within the LLV Plan Boundary: Q4, 2025
4. Commencement of installation of full GTO ISR wellfield: Q1, 2026
5. Commencement of removing overburden in the Lone Wolf Pit: Q2, 2026
6. Active open pit mining within the Lone Wolf Pit: 2026 - 2043
7. Closure and reclamation of waste dumps and certain roads within the Active Mine Plan: 2026
8. Initiation of LVM HLP Draindown: 2028 – 2038
9. Commencement of installation of Lone Wolf Extents ISR wellfields: 2028
10. ISR activities in GTO and Lone Wolf Extents, combined: 2026 – 2046
11. Reclamation of Lone Wolf WRS and certain roads: 2030
12. Rinsing of GTO aquifer and final reclamation of GTO well field: 2033 – 2043
13. Initiation of LLV HLP Draindown, and removal of crushing facilities: 2046 – 2056
14. Rinsing of Lone Wolf aquifer and final reclamation of Lone Wolf well field: 2046 – 2056
15. Post-Closure monitoring: 2056 – 2066

3.8 Plans for Access, Power, Water, & Support Services

The LLV Plan Boundary has access from the Lisbon Valley Road (County Road 313, Figure 3-1). Access off of the Lisbon Valley Road will be from existing roads currently used within the LLV Plan Boundary for

exploration purposes, and the construction of new roads. Widening of existing access roads and construction of new roads will be done to widths sufficient for standards of the Mine Safety and Health Administration (MSHA).

Power will be from overhead powerlines that are connected to the substation located within the Active Mine Plan Boundary.

Water for mining and beneficiation will be from the presently installed production wells that are located within the Active Mine Plan Boundary and LLV Plan Boundary. Additional production wells may be drilled depending upon the need of water usage for Open Pit and ISR activities. As the system is a 'closed-circuit', the loss of water to evaporation or entrainment within materials can be estimated based upon the data collected during the ten years of active mining that has occurred within the Active Mine Plan boundary. This information will be used to estimate the need for additional production wells. As part of the ongoing exploration activities within the LLV Plan Boundary, alternate locations for production wells will be determined.

Support services for the proposed activities will be the onsite fleet of equipment, facilities, and structures within the Active Mine Plan Boundary. Vendors and other sources would be located in surrounding cities such as Moab, Monticello, and Blanding, Utah.

4.0 Reclamation Plan – 3809.401(b)(3)

The reclamation plan for the proposed activities within the LLV Plan Boundary will follow the reclamation plan as set forth in the Large Mining Operations Permit with UDOGM and the 1997 ROD. The current land use in Lisbon Valley is mining, rangeland, recreation, and wildlife habitat. Post-mining land use will be rangeland, recreation, and wildlife habitat.

4.1 Drill-hole Plugging

Any exploration and development drill holes will be abandoned in accordance with R647-4-108. Any remaining production and monitoring wells will be abandoned by a Utah state licensed contractor in accordance with R655-4-14. Drill-hole plugging for the ISR wellfields will be performed in accordance with the UDWQ Underground Injection Control permits and EPA Aquifer Exemption Permits, respectively.

4.2 Regrading & Reshaping

The Lone Wolf WRS facility will be completed with breaks in slopes, roughened slopes and maximum slope angle 3H:1V. Surface water is diverted around the dumps where possible.

The Company will concurrently reclaim dumps as they are completed. This will include grading to a final contour that maximizes conformance with existing topography. Roughened surfaces are created by ripping along contour to approximately 1.5 feet in depth. The equipment performing the ripping will have a seeder attached to the back to efficiently place the seed in the freshly ripped grooves. Seeding activities will be scheduled for the fall when possible. Rilled areas will be backfilled and repaired as necessary during the mine life.

Final surface reclamation will include the placement of growth media as deemed necessary for the soil types, seeding and revegetation.

All haul roads and roads not deemed essential by UDOGM or the BLM will be reclaimed. Reclamation will include ripping/re-grading, followed by topsoil placement if needed and re-seeding.

4.3 Mine Reclamation & Pit Backfilling

As mining in the Lone Wolf is proposed to be performed in stages, pit backfilling will occur as a natural part of the mine plan. Upon closure of the operations, mine reclamation will include installation of fencing around remaining open pit areas, and berming off access ramps into the pit.

4.4 Topsoil Handling

Growth media will be spread over the waste dumps, leach pad, and accessible in pit haul roads using loaders, haul trucks, bulldozers, and graders. Growth media will be spread as deemed necessary for revegetation success. Pit highwalls and floors will not be covered with growth media.

Growth media will be spread in the same way for all of the reclamation across the site. Waste dumps may have additional roughening to the surface, including dozer basins, ripping parallel to slopes and track packing perpendicular to slopes. The leach pad will have light ripping on the surface and parallel to slopes and track packing perpendicular to slope will be used to create seed beds. Rilled areas will be backfilled and repaired as necessary during the mine life.

Final surface reclamation will include seeding and revegetation to a minimum of 70% of the baseline vegetation cover.

The seeding method will vary and include broadcasting, drill seeding, and aerial seeding with the objective to meet the reclamation standard of 70% of the baseline vegetation cover.

4.5 Surface Water Mitigation

Drainages will be built at the onset of mining and as a course of final reclamation at the end of the mine life to maintain drainage continuity and minimize erosion. Sediment traps and erosion control structures, including rock check dams, may be expanded as necessary based on drainage monitoring in accordance with the SWPPP. Culverts placed in the drainages around the site which were installed by the Company and used during operations will be removed as part of the reclamation process.

4.6 Wildlife Habitat Rehabilitation

The Company will work with the local landowners, the BLM, and the State of Utah to ensure a final reclamation plan meets the specifications for wildlife habitat rehabilitation. As the LLV Plan Boundary is generally used for rangeland, it is the Company's goal to ensure post-closure use is focused on maximizing grasses and forbs suitable for the continuation of rangeland use.

4.7 Removal of Toxic or Deleterious Materials

As part of the closure process, all toxic and/or deleterious materials will be removed from site and taken to a designated recycling facility. The Company has a comprehensive draindown plan for the HLP within the Active Mine Plan Boundary. This plan, once proven successful during the closure of the facilities within the Active Mine Plan Boundary, will be utilized for the remediation of the LLV HLP.

4.8 Removal of Buildings, Structures, & Facilities

All buildings not integral to the long-term post-mining monitoring is expected to be removed from site upon closure of operations. Such buildings that may be left in place post-mining would include process ponds for the continued containment of draindown from the HLP and also to act as a concentration point for the rinsing of the aquifers during closure of the ISR activities. Other structures that may remain include certain access roads, fresh water ponds, and overhead powerlines.

4.9 Provisions for Post-Closure Management

Provision for post-closure management will be dependent upon the input from the Federal and State Agencies. Specific provisions to post-closure management in regard to the ISR wellfields will be dependent upon input from the EPA and UDWQ.

5.0 Monitoring Plan Requirements – 3809.401(b)(4)

5.1 Description of Resources Subject to Monitoring Plans

Resources subject to monitoring plans within the LLV Plan Boundary include:

- Monitoring of the success of revegetation on all surfaces in which revegetation was applied;
- Monitoring the draindown of the HLP;
- Monitoring of the aquifer post-rinsing in relation to the closure of the ISR activities;
- Monitoring of the post-mining diversion channels for runoff control.

5.2 Type & Location of Monitoring Devices

The type of monitoring devices that would be employed post-mining include:

- Monitor wells – located throughout the LLV Plan area;
- Water level sensors – located in the process ponds used for monitoring draindown of the HLPs.

Monitoring of the revegetation success and the stability of the diversion channels would be performed quarterly by visual inspection.

5.3 Sampling Parameters & Frequency

Sampling parameters for monitoring the groundwater quality would be stipulated by the UDWQ and EPA, as the ground water would be subject to the Aquifer Exemption Permit.

Sampling parameters for monitoring the draindown of the HLPs would be stipulated by the UDWQ.

5.4 Analytical Methods & Reporting Procedures

Analytical methods and reporting procedures would be determined by the UDWQ and EPA for the sampling and analyses of ground water.

Analytical methods and reporting procedures would be determined by the UDWQ for the sampling and analyses of the draindown of the HLPs.

5.6 Procedures for Responding to Adverse Monitoring Results

Procedures for responding to adverse monitoring results will be put in place and provided to the Federal and State Agencies prior to commencement of activities that may cause adverse effects to surface and ground water.

5.7 Reliance on other Federal or State Monitoring Plans

The entirety of the post-closure monitoring of water resources is reliant on the UDWQ and EPA monitoring plans.

Post-closure monitoring of revegetation success is reliant on the UDOGM and BLM monitoring plans.

6.0 Interim Management Plan – 3809.401(b)(5)

The Interim Management Plan outlines how the Company intends to manage the project area during periods of temporary closure to prevent unnecessary or undue degradation of the property and associated equipment until the restart of the mine. The interim management plan will be triggered when the Company notifies UDOGM and the BLM of an interim or temporary shutdown of operations.

6.1 Measures to Stabilize Excavations & Workings

The existing and proposed pits have engineered high walls designed for stability. No further actions in the pits will be necessary. Drainages around pits will be maintained to prevent storm water erosion or run-off into these features. Measures to control public access to excavations and workings are described below. Roads, berms, waste dumps, topsoil stockpiles and unused process areas will be seeded once to stabilize soils. Exploration and ISR drill holes will be plugged in accordance with state abandonment procedures.

6.2 Measures to Isolate or Control Toxic or Deleterious Materials

During the commercial and final drain down phases, regulated materials (such as hazardous materials) will be managed in accordance with applicable requirements. Regulated materials that will be used during the shutdown period will be managed as during operations. Aboveground storage tanks will be managed as required by the Company's SPCC Plan. Other structures used to store regulated materials will be emptied or maintained as appropriate.

During the interim shutdown phase, all valves in the fuel and lube island containment structures are left in the closed positions and locked. All cleaning agents, such as WD-40, or Brake Kleen are secured inside flammable container cabinets located inside the locked maintenance shops. Remaining grease and other lubricants are stored inside the covered locked storage area inside their secondary containment. Common household cleaners used for sanitation of the bathrooms are stored in the bathrooms. Remaining regulated materials will be recycled, or disposed of properly.

6.3 Plan for Storage or Removal of Equipment, Supplies, Structures

During the commercial and final drain down phases, the heavy equipment will be removed or remain at the equipment staging area. The keys are removed from this equipment, master switches are turned off, and the cabs are locked to prevent vandalism.

Only necessary buildings and structures will be kept in operation. These will include the SX Control office, Process maintenance shop, electrical shop, the lab, the warehouse, the administration office, and others on an as-needed basis. Unnecessary buildings will be winterized and locked.

Only necessary supplies will be retained. Supplies will be moved into vacant buildings (such as the warehouse or the truck shop) and locked. Large supplies will remain in their laydown yards where they are currently stockpiled.

During the interim shutdown phase, the Company will remove or secure and store remaining equipment.

6.4 Measures to Maintain the Area in a Safe & Clean Condition

During the commercial and final drain down phases, compliance with Mine Safety and Health Administration (MSHA)'s safety regulations will continue. Regular MSHA inspections are expected to continue. The security measures described in this Plan of Operations will remain in effect.

During the interim shutdown phase, the site and remaining equipment will be secured, trash will be removed, the site will be cleaned and power shut off. The Company will retain a few employees to monitor the site and maintain the site's security features as needed. The site will remain closed to the public. Public access will be controlled by signing, fencing, gates, or berms to warn the public of hazards associated with open excavations or high walls, and unsafe buildings or facilities where chemicals, petroleum products, or reagents are stored.

6.5 Plans for Monitoring Site Conditions during Non-Operation

Upon notice of the Company's intent to temporally shut down the mine, operations will shift to the HLP commercial drain down phase. The remaining copper will be leached with acid and water addition, only as necessary, to maintain proper pH and solution volume for leaching. Retreats will be removed from the leaching circuit over time as the grade reaches a level that is no longer economic. This gradual process allows for natural & forced evaporation to reduce the volume of the leachate and concentrate copper grade. Forced evaporation will include high-capacity evaporation nozzles to evaporate and concentrate the leachate inventory. This phase is engineered and estimated to take up to six years and could be extended. As this phase is coming to completion the volume of leachate in the leach pad is greatly reduced. During the commercial drain down, the Company will complete reclamation in areas where no further disturbance is planned.

In the event the temporary shutdown is to extend beyond the 6-year commercial drain down phase, operations will shift to the final drain down phase. The evaporation of the remaining solution is engineered to take between one to two years. Evaporation efforts will continue until leach solution draining from the HLP evaporates naturally with less than 2 feet in the storm water pond. Drainage from the HLP will be directed to the storm water pond. In the event of a large storm event, the storm water pond will cascade overflow into the PLS, ILS, and Raff ponds prior to overflowing into the emergency overflow pond. Collected storm water will evaporate naturally. If the Company elects to operate at a reduced volume of leach pad solution, the Company will continue to manage solution pH. During this period, the Company will seed unneeded roads, berms, waste dumps, topsoil stockpiles, and process areas, to stabilize soils.

During the interim shutdown the Company will maintain and care for the facilities and site as needed.

The Company will restart full operations when it deems appropriate.

The Company will maintain personnel on site for the HLP commercial and final drain down to maintain equipment, infrastructure, and to provide for ongoing environmental activities, studies, and reclamation. Care and maintenance activities are required during a temporary shutdown so that operations may be efficiently resumed when appropriate. Personnel will remain on site to conduct routine maintenance and inspections and maintain compliance with requirements in environmental permits and mine plans of operation, as well as exercise key equipment and infrastructure.

During the interim shutdown phase, the Company will retain employees as needed to monitor the site and maintain the site's security features.

6.6 Schedule of Anticipated Non-Operation

The Company does not anticipate periods of temporary closure, but the Company's plans are subject to future copper prices.

6.7 Provisions to Notify the BLM of Changes in Non-Operation Period

The Company will notify both the BLM and UDOGM, as required if an interim shutdown is planned. The submittal will include an anticipated schedule for the HLP drain down process and an estimated re-start date. If the interim shutdown extends beyond the original estimated re-start date, the Company will notify both the BLM and UDOGM with a new submittal proposing an extension and any updates to the interim management plan.

An interim shutdown at the Active Mine Plan Boundary and LLV Plan Boundary would have multiple phases including; i) leach pad commercial drain down when the processing facility continues to produce copper as solution volumes are reduced, ii) final drain down when the remaining solution from the leach pad is evaporated or maintain a reduced volume depending on the circumstances of the interim shutdown, iii) the leach pad is fully drained, the site is clean and secure, and iv) the restart of the mine when the Company restarts mining and processing operations.

Acronyms & Abbreviations

AMA	Active Metal Mining Facility
BLM	Bureau of Land Management
BMP	Best management practices
EPA	Environmental Protection Agency
HLP	Heap leach pad
ILS	intermediate leach solution
ISR	In-situ recovery
LLV	Lower Lisbon Valley
LOM	Life of Mine
MSGP	Multi-Sector General Permit
MSHA	Mine Safety and Health Administration
PLS	pregnant leach solution
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
ROM	Run of mine
SPCC	Spill Control & Countermeasures
SWPPP	Storm Water Pollution Prevention Plan
SX/EW	Solvent Extraction / Electrowinning
The Company	Lisbon Valley Mining Company, LLC
UDEQ	Utah Department of Environmental Quality
UDOGM	Utah Division of Oil, Gas and Mining
UDWQ	Utah Division of Water Quality
UPDES	Utah Pollutant Discharge Elimination System
WRS	Waste rock storage

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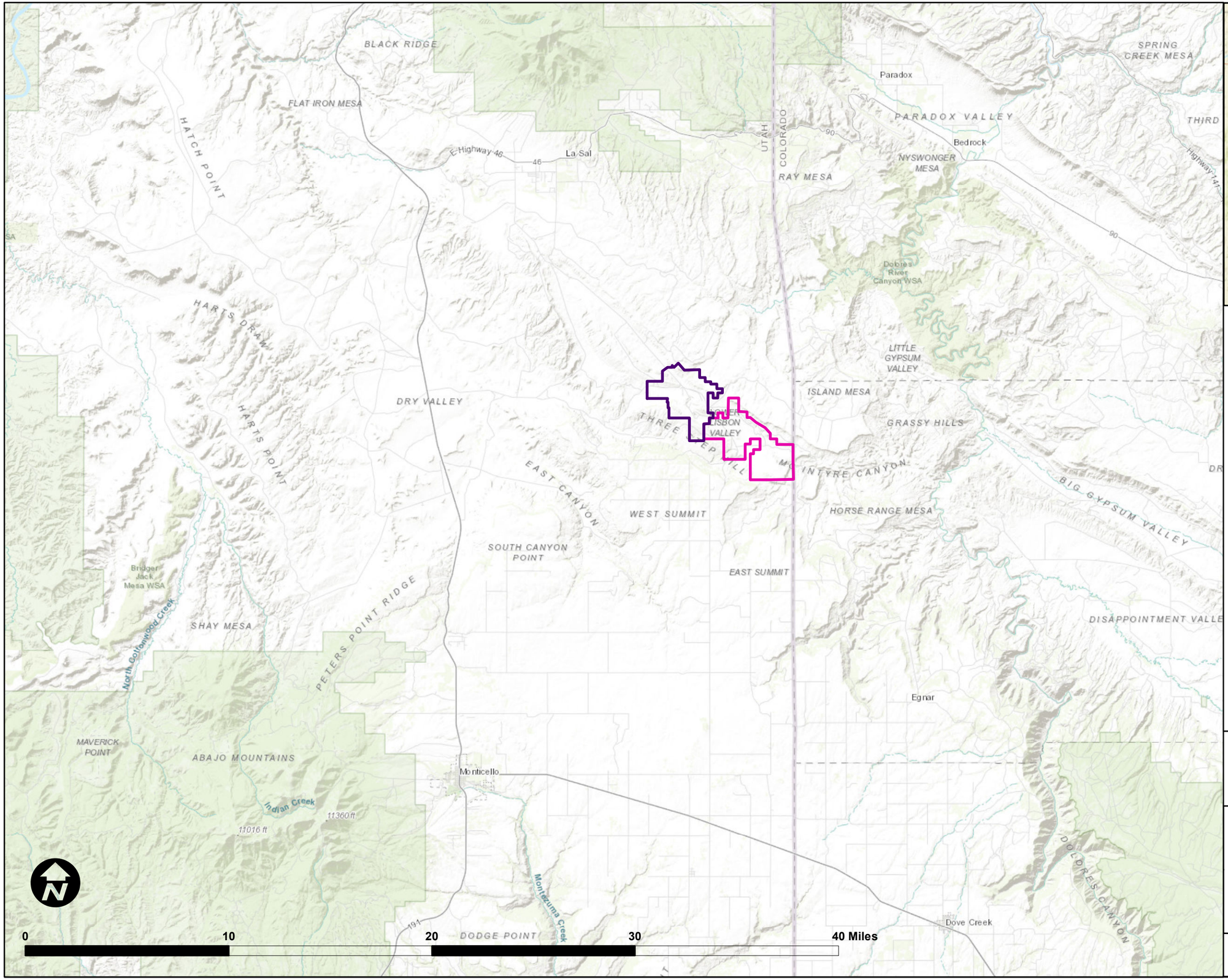

Legend

- LVMC_Active_Project_Boundary
- LLV_Plan_Boundary

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Modification of the
Lisbon Valley Mining Company Plan of Operations
UTU-72499

FIGURE 1-1
General Location Map

DATE: 28 December 2022
Drafted By: LVM Engineering; ADT

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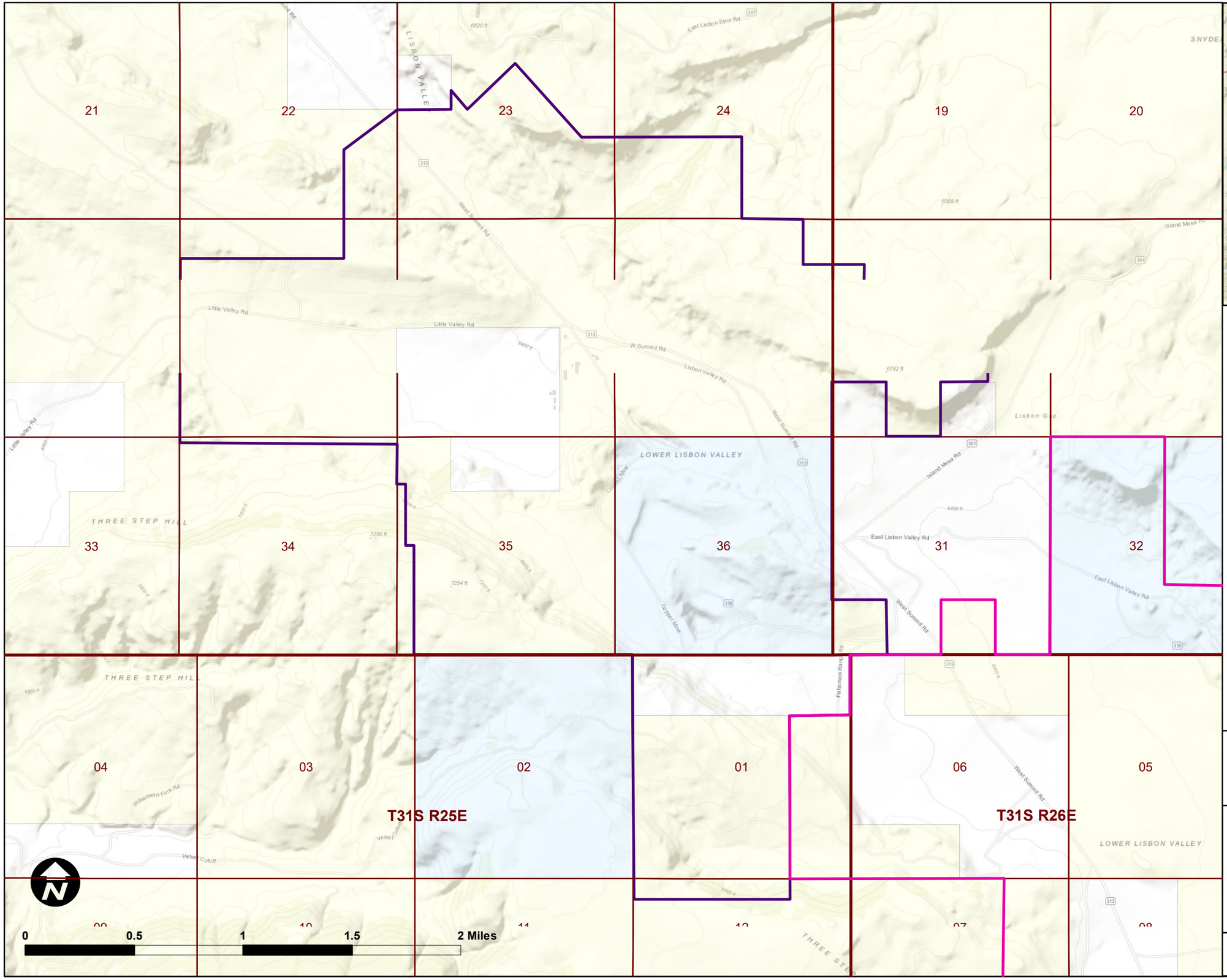

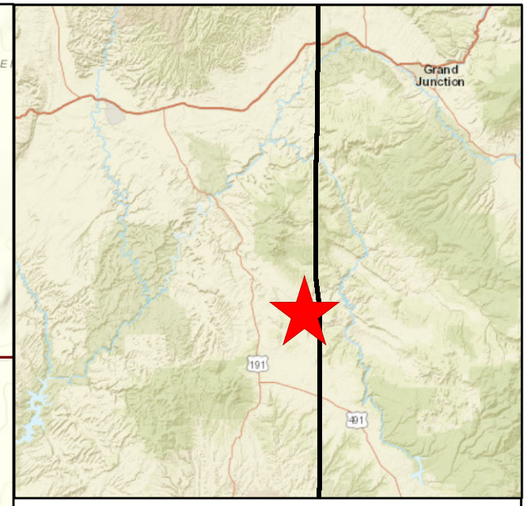

Legend

- LVMC_Active_Project_Boundary
- LLV_Plan_Boundary

OWNER

- Federal
- Private
- State

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Modification of the
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FIGURE 1-2
Active Plan Boundary

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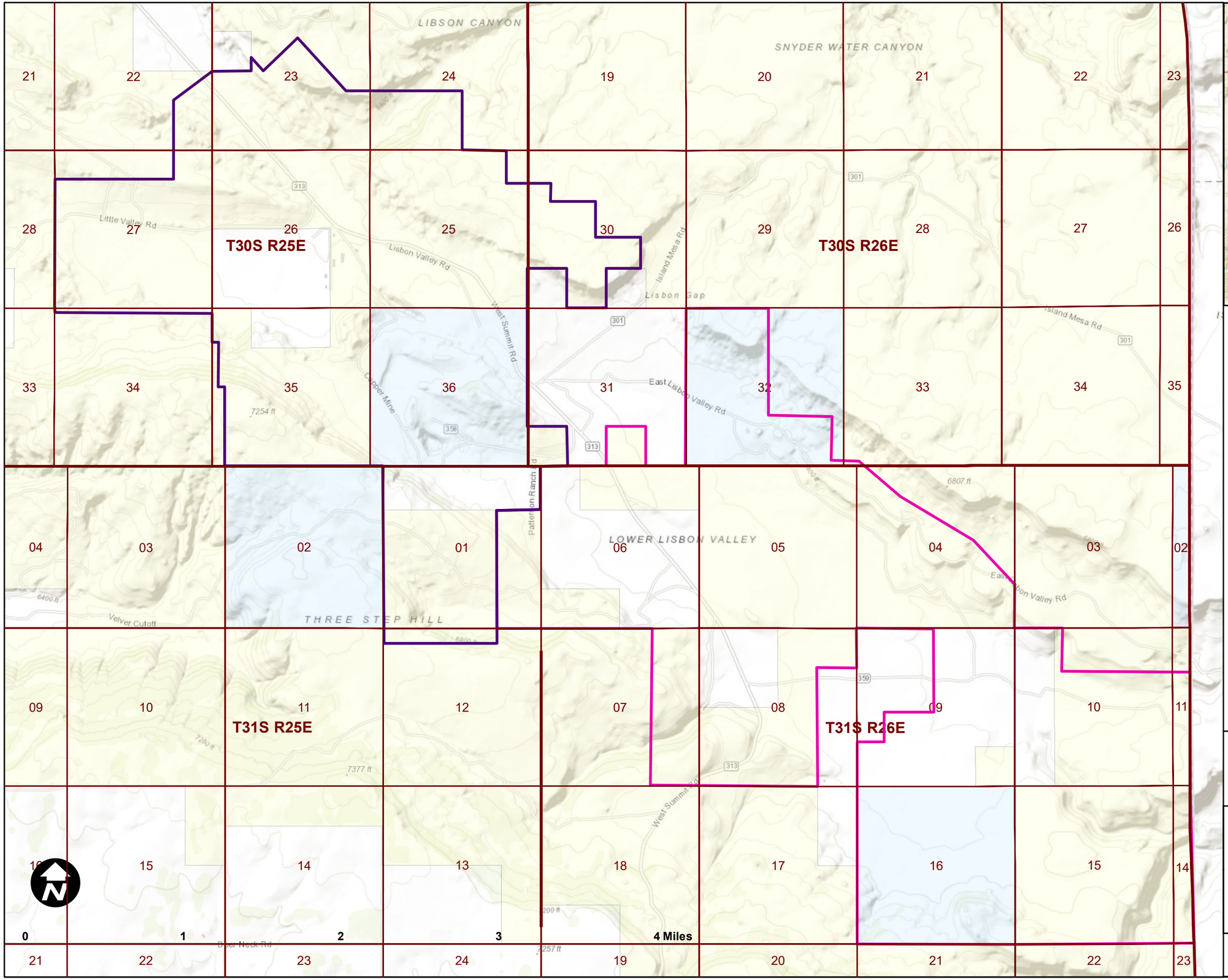

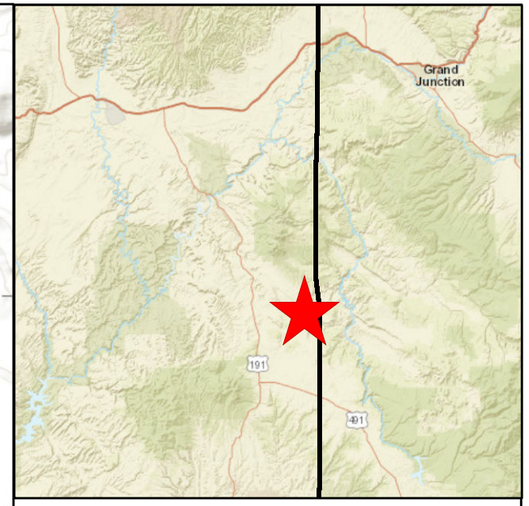

Legend

- LVMC_Active_Project_Boundary
- LLV_Plan_Boundary

OWNER

- Federal
- Private
- State

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UTU-72499

FIGURE 1-3
Active & LLV Plan Boundary

DATE: 28 December 2022
Drafted By: LVM Engineering; ADT

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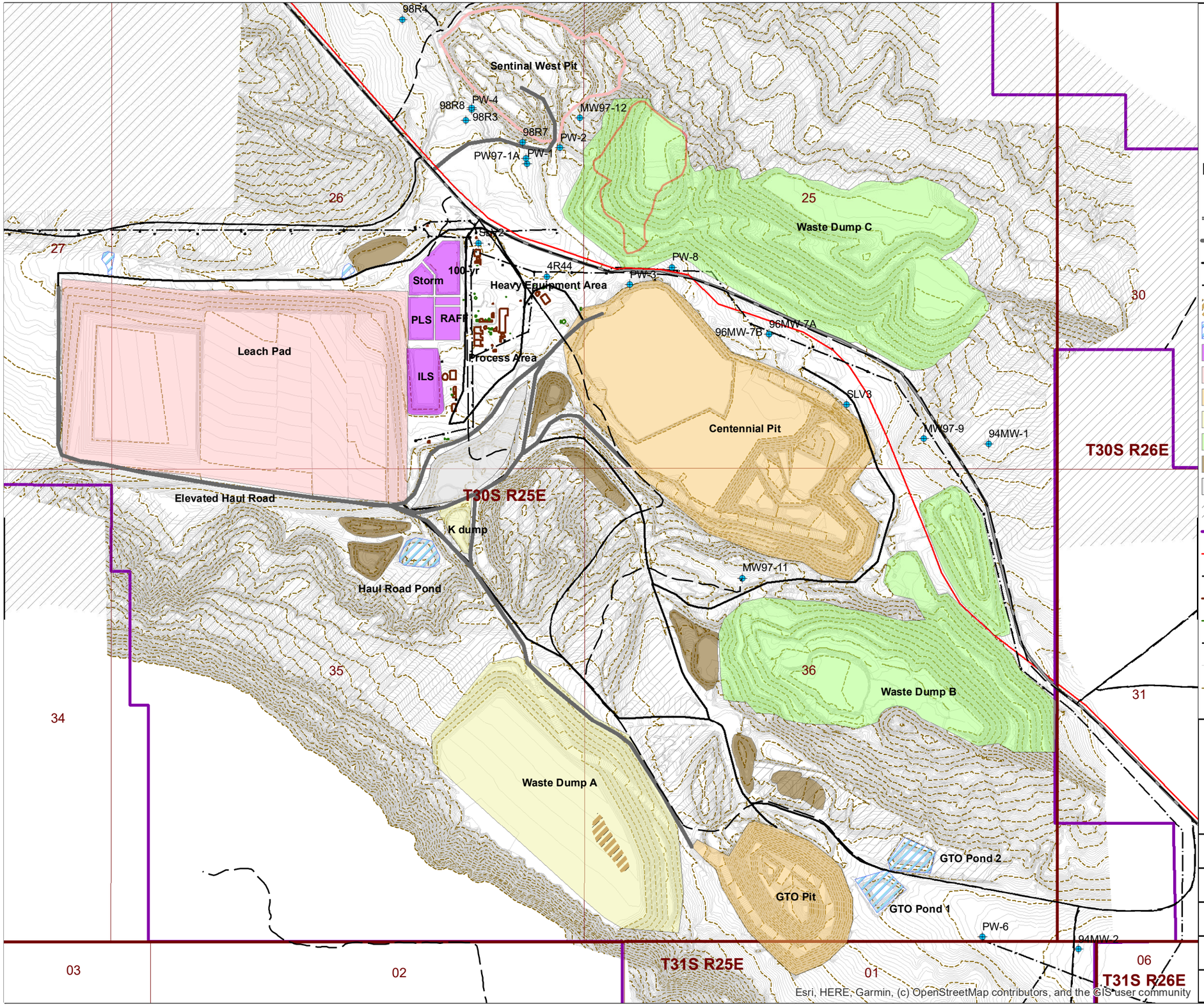

0 750 1,500 2,250 3,000 Feet

N

Legend

- Water Wells (PW = production wells; all other wells are monitor wells)
- Lisbon Valley Highway
- Haul Rds
- Light Vehicle Access Rds
- CountyRoads
- Class IVb Landfill
- Manmade FreshWaterPonds
- ProcessPonds
- ExistingLeachPad
- ProposedPits(2020)
- ActiveWasteDumps(2020)
- Waste Dumps (inactive)
- Topsoil
- Clay Pile
- Areas with disturbances not caused by LVMC (Pre-1998)
- LVMC_Active_Project_Boundary
- GAS LINE
- POWER LINE
- FACILITIES
- BUILDINGS
- UTIL_POWERPOLE
- 2-ft contour
- 10-ft contour

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Figure 3-1

Current Active Mining Disturbance

Designed By: A. Tarrant

Data: LVMC Engineering; ArcGIS

Current as of: October 2020

T30S R26E

T31S R25E

T31S R26E

0 0.5 1 1.5 2 Miles

Legend

- 2022_LVMC_Drilling
- 2022_LVMC_Access
- Existing_LLV_Disturbance_(as_of_2021)
- 2021_Drilling_completed
- 2017_DrillHoles
- 2015_DrillHoles
- 2014_DrillHoles
- 2007_DrillHoles
- 2006_DrillHoles
- 2005_DrillHoles
- LVMC_Water_Wells
- Power & Water ROW
- LVMC_Existing_Powerlines
- Utah Existing Roads
- LVMC_Active_Project_Boundary
- LLV_Plan_Boundary

OWNER

- Federal
- Private
- State

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FIGURE 3-2
LLV Current Activities

DATE: 28 December 2022
Drafted By: LVM Engineering; ADT

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0

Legend

- Surface Drainage1(A)
- Storm Event Ponds (A)
- GTO_Wellfield_Roads (A)
- LW&FD_Wellfield_Roads (A)
- Cattle Guard
- Conveyor (A)
- Solution Pipeline (A)
- Light Vehicle Access (A)
- Natural Gas Line Re-route (A)
- Road Berms & Fill (A)
- Mine Haul Roads (A)
- Waste Rock Storage (A)
- Mine Pit Areas (A)
- In-Pit Backfilling (A)
- Heap Leach Pads (A)
- Process Area (A)
- Process Ponds (A)
- Admin Area (A)
- Crusher Yard (A)
- Laydown Yard (A)
- Equipment Lineup & Truckshop (A)
- Growth Media Stockpiles (A)
- LP Capping Borrow Material (A)
- LVMC_Active_Project_Boundary
- LLV_Plan_Boundary
- Utah Roads (pre-existing)

OWNER

- Federal
- Private
- State

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FIGURE 3-3
Proposed Activities (Alt A)

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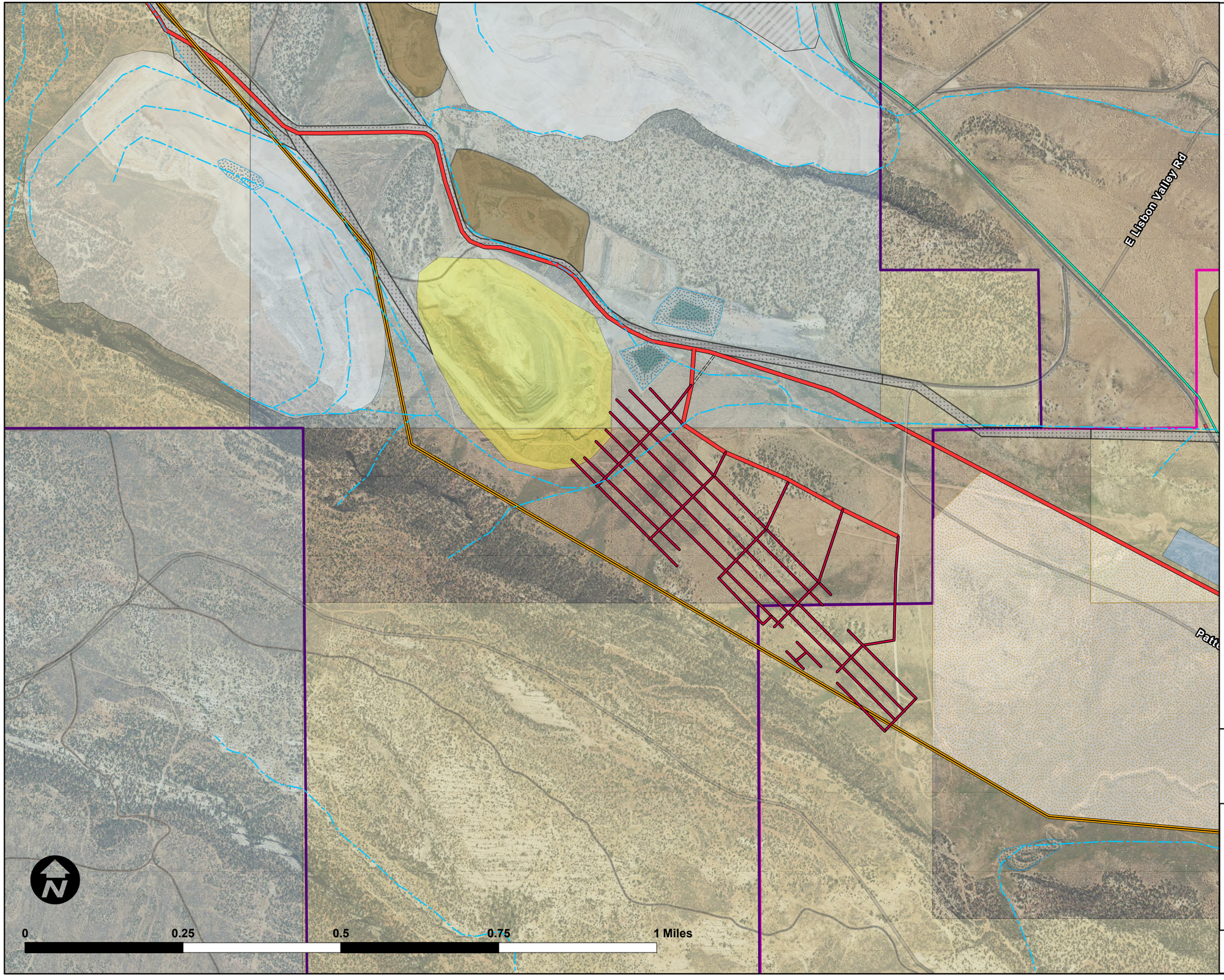
0 1 2 3 4 Miles



Legend

- Surface Drainage1(A)
- Storm Event Ponds (A)
- GTO_Wellfield_Roads (A)
- LW&FD_Wellfield_Roads (A)
- Cattle Guard
- Conveyor (A)
- Solution Pipeline (A)
- Light Vehicle Access (A)
- Natural Gas Line Re-route (A)
- Road Berms & Fill (A)
- Mine Haul Roads (A)
- Waste Rock Storage (A)
- Mine Pit Areas (A)
- In-Pit Backfilling (A)
- Heap Leach Pads (A)
- Process Area (A)
- Process Ponds (A)
- Admin Area (A)
- Crusher Yard (A)
- Laydown Yard (A)
- Equipment Lineup & Truckshop (A)
- Growth Media Stockpiles (A)
- LP Capping Borrow Material (A)
- LVMC_Active_Project_Boundary
- LLV_Plan_Boundary
- Utah Roads (pre-existing)

OWNER

- Federal
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- State

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FIGURE 3-4
GTO ISR Activities

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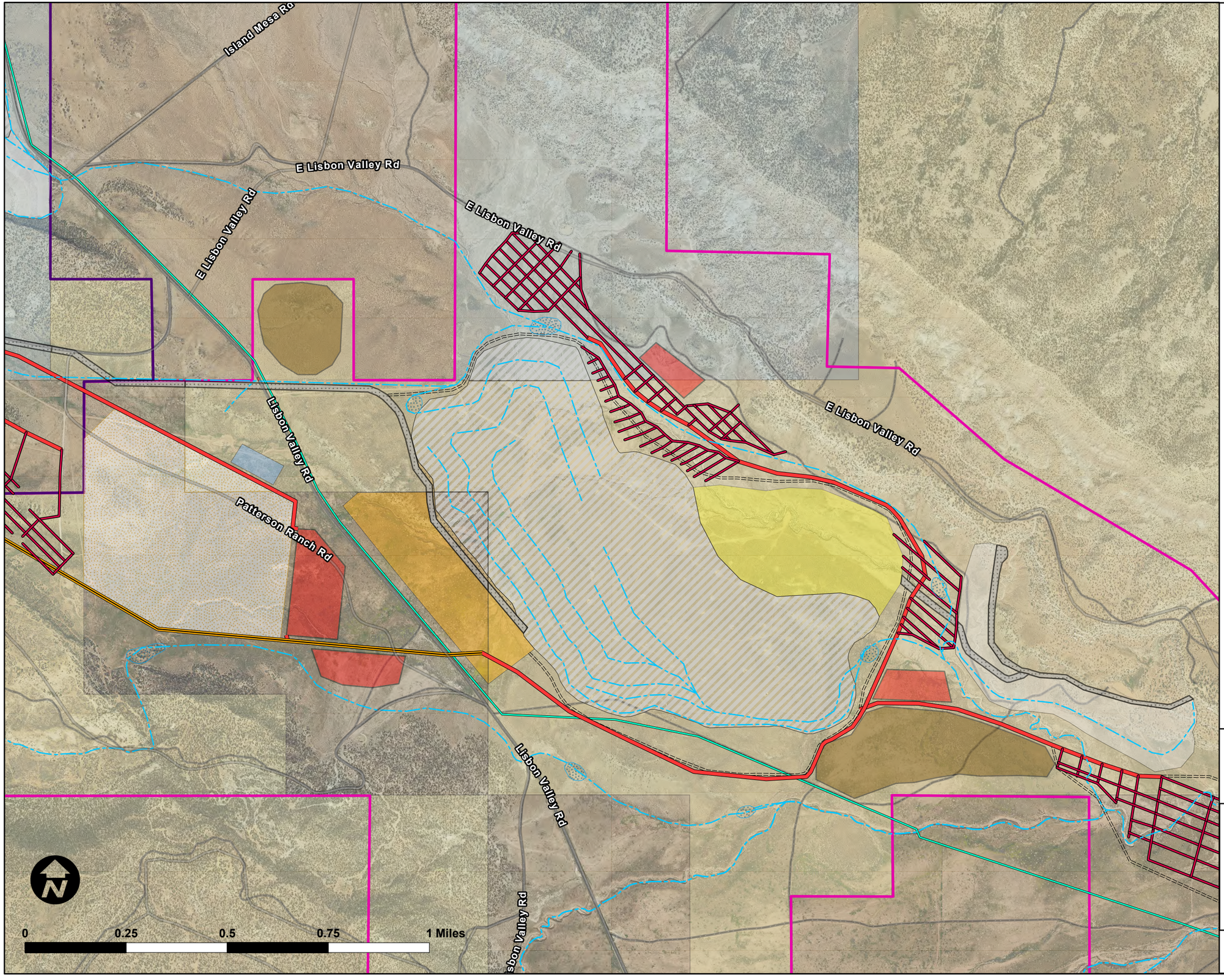

Legend

- Surface Drainage1(A)
- Storm Event Ponds (A)
- GTO_Wellfield_Roads (A)
- LW&FD_Wellfield_Roads (A)
- Cattle Guard
- Conveyor (A)
- Solution Pipeline (A)
- Light Vehicle Access (A)
- Natural Gas Line Re-route (A)
- Road Berms & Fill (A)
- Mine Haul Roads (A)
- Waste Rock Storage (A)
- Mine Pit Areas (A)
- In-Pit Backfilling (A)
- Heap Leach Pads (A)
- Process Area (A)
- Process Ponds (A)
- Admin Area (A)
- Crusher Yard (A)
- Laydown Yard (A)
- Equipment Lineup & Truckshop (A)
- Growth Media Stockpiles (A)
- LP Capping Borrow Material (A)
- LVMC_Active_Project_Boundary
- LLV_Plan_Boundary
- Utah Roads (pre-existing)

OWNER

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- State

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FIGURE 3-5
LW Open Pit Activities (Alt A)

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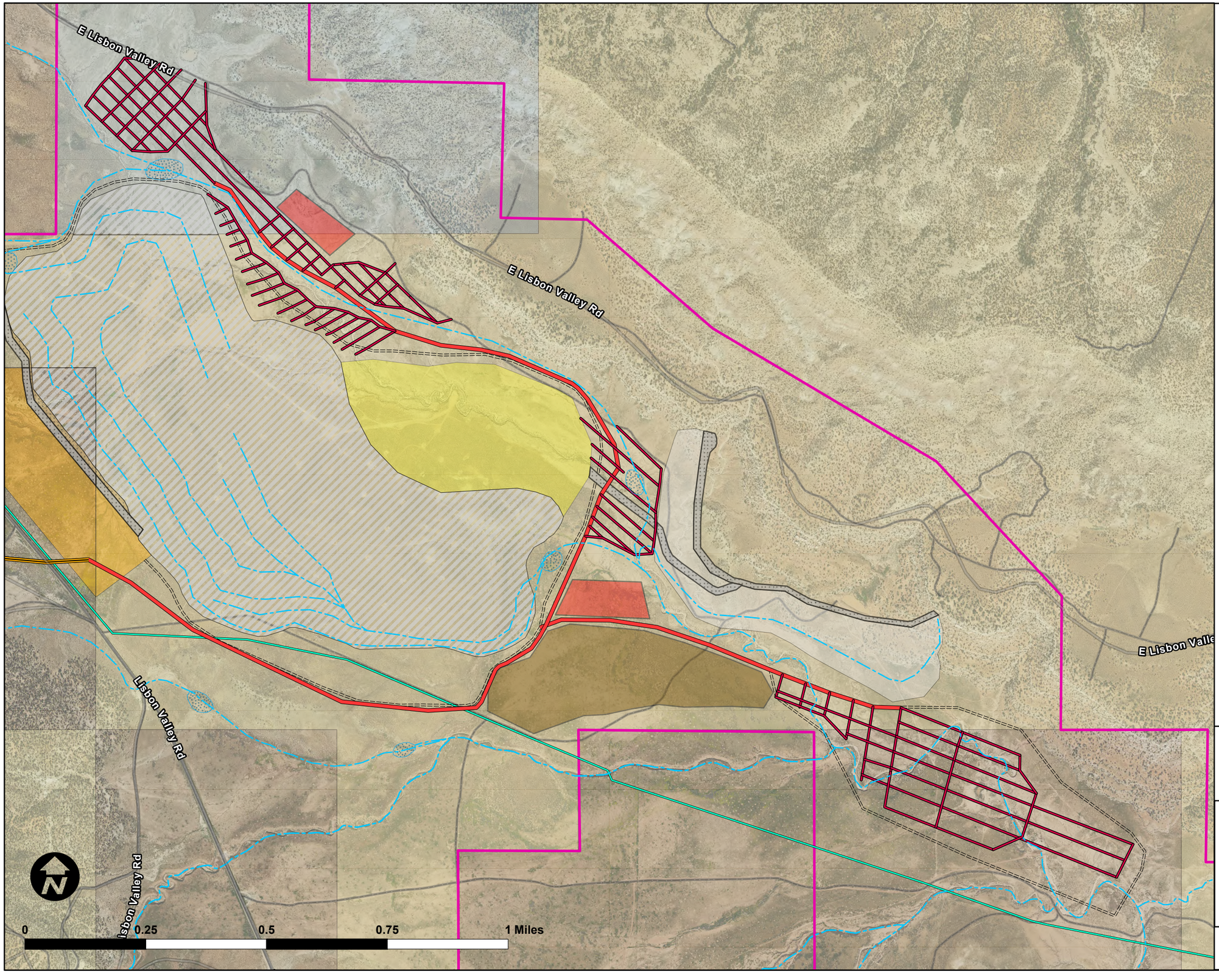

Legend

- Surface Drainage1(A)
- Storm Event Ponds (A)
- GTO_Wellfield_Roads (A)
- LW&FD_Wellfield_Roads (A)
- Cattle Guard
- Conveyor (A)
- Solution Pipeline (A)
- Light Vehicle Access (A)
- Natural Gas Line Re-route (A)
- Road Berms & Fill (A)
- Mine Haul Roads (A)
- Waste Rock Storage (A)
- Mine Pit Areas (A)
- In-Pit Backfilling (A)
- Heap Leach Pads (A)
- Process Area (A)
- Process Ponds (A)
- Admin Area (A)
- Crusher Yard (A)
- Laydown Yard (A)
- Equipment Lineup & Truckshop (A)
- Growth Media Stockpiles (A)
- LP Capping Borrow Material (A)
- LVMC_Active_Project_Boundary
- LLV_Plan_Boundary
- Utah Roads (pre-existing)

OWNER

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- State

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FIGURE 3-6
Lone Wolf ISR Activities

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Drafted By: LVM Engineering; ADT

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2

LISBON VALLEY MINING CO

APPENDIX A
ALTERNATIVES B, C, & D

Lisbon Valley Mining Company LLC
Lower Lisbon Valley Project

UTU-72499

Prepared By:
Lisbon Valley Mining Company, LLC
PO Box 400
Moab, UT 84532

April 2023

Table of Contents

Tables

1.0 Introduction

As summarized in the Plan of Operations, Lisbon Valley Mining Company (the Company) is proposing to expand its mining operations into the LLV Plan Boundary. The Plan of Operations is provided to the BLM for review as 'Alternative A'. Summarized within this document are Alternatives B, Alternative C, and Alternative D, respectively. These alternatives are being provided as they are the alternatives evaluated by the Company which ultimately resulted in the proposed Alternative A. Each Alternative listed below was evaluated based on the merits of:

1. Environmental impacts;
2. Social impacts; and
3. Economic impacts.

The alternatives are as follows:

Alternative A	Hybrid Open Pit & ISR Case
Alternative B	Open Pit Only Case
Alternative C	ISR Only Case
Alternative D	No Action Alternative Case

Alternative A represents the Proposed Action.

Alternative B represents the evaluation of the continued mining activities without the ISR component. In this case, as seen in more detail within this Appendix, the Lone Wolf deposit would be mined by open pit mining methods only. The GTO deposit would be left un-mined beyond the current planned open pit extents.

Alternative C represents the evaluation of no open pit mining with the LLV Plan Boundary. Instead, the Lone Wolf deposit would be mined solely by ISR methods.

Alternative D represents the no action alternative. In this alternative, no mining, either ISR or open pit, would commence within the LLV Plan Boundary. Instead, the Company would continue with exploration activities under its approved Exploration plans.

2.0 Alternative B

2.1 Description of Operations

Under Alternative B, the Company would not pursue ISR as a means of mineral extraction. Instead, the Company would expand its open pit operations within the LLV Plan Boundary. The Lone Wolf deposit would be mined only through open pit mining methods. No additional copper ore would be extracted from the GTO deposit other than from open pit mining.

Due to the increase in tons of ore that would be mined via open pit mining methods, not only would the LLV HLP be required, the LVM HLP would also be expanded significantly in order to increase the HLP capacity for additional mined ore tons.

The proposed activities that would occur within the Active Mine Plan Boundary and LLV Plan Boundary under Alternative B, in addition with ongoing exploration, would include the following components:

- Open pits;
- Waste rock storage (WRS);
- Storm water diversion channels, sediment basins, and berms;
- Heap leach pad (HLP);
- Solution pipelines;
- Access roads;
- Exploration activities; and
- Ancillary facilities including: power supply; reagent, fuel, ready line; crushing area and related stockpiles; area for temporary storage of petroleum-contaminated soils; ground water monitoring wells; water supply pipeline and facilities; and construction laydown yards.

Table 2-1: Anticipated Disturbance for the LLV Alternative B

Mine Component	Total Disturbance	Private	BLM	SITLA
Roads (acres)				
Mine Haul Roads	102.3	15.4	62.6	24.3
Road Berms & Fill	31.1	8.4	10.8	11.9
Light Vehicle Access Roads	17.4	1.8	13.9	1.7
ISR Well Roads	-	-	-	-
ISR Well Pads	-	-	-	-
Subtotal	**150.8**	**25.6**	**87.3**	**37.9**
Leach Pad, Mine Pit, Waste Rock Dump, Borrow Area, Ponds, Stockpiles (acres)				
A Dump WRS	135.1	-	87.7	47.4
B Dump WRS	100.6	-	-	100.6
C Dump WRS	258.0	-	258.0	-
Lone Wolf WRS	256.9	-	256.9	-
Centennial Pit (un-backfilled)	101.8	-	97.2	4.6
Centennial Backfill Area	141.4	-	35.1	106.3
GTO Pit	48.0	-	6.4	41.6
Lone Wolf Pit (un-backfilled)	169.4	-	132.6	36.8
Lone Wolf Backfill Area	376.9	10.5	362.3	4.1
LVM Leach Pad	389.3	174.1	215.2	-
LLV Leach Pad	243.5	206.6	36.9	-
LVM Process Area	29.3	8.7	20.6	-
LVM Process Ponds	29.8	29.8	-	-
LLV Process Ponds	23.8	23.8	-	-
Fresh Water Ponds	31.0	5.5	17.4	8.1
Growth Media Stockpiles	143.2	10.4	108.8	24.0
LP Capping Borrow Material	17.2	16.7	0.5	-
Subtotal	**2,495.2**	**486.1**	**1,635.6**	**373.5**

Yards (acres)				
Admin Area	5.1	-	5.1	-
Crusher Yard	31.4	22.8	8.6	-
Laydown Yards	11.0	4.2	6.8	-
Equipment Lineup & Truckshop	10.4	-	10.4	-
Yards Subtotal	**57.9**	**27.0**	**30.9**	**-**
Linear Features (acres (see project notes))				
Drainage Control Features	72.6	17.8	45.2	9.6
Natural Gas Line Re-Route	2.4	-	1.8	0.6
Ore Conveyor	2.0	1.2	0.8	-
Solution Pipeline	8.1	4.6	0.4	3.1
Subtotal	**85.1**	**23.6**	**48.2**	**13.3**
Project Total	**2,789.0**	**562.3**	**1,802.0**	**424.7**

PROJECT NOTES	
Haul Road Width (ft)	100
Light Vehicle Road Width (ft)	30
Ore Conveyor width (ft)	15
ISR Well Road Width (ft)	20
ISR Well Pad square footage	900
Solution Pipeline corridor Width (ft)	20
Average Drainage Control Width (ft)	20
Natural Gas Line Re-route width (ft)	10

The Alternative B has an anticipated mine life of approximately 20 years, with an additional 10 years for reclamation and closure.

Of the anticipated disturbance, only a fraction would be considered permanent. Table 2-2 summarizes the proposed disturbances by anticipated duration:

Table 2-2: Anticipated Disturbance Duration for the LLV Alternative B

	Total Disturbance Acres	Temporary (1)	Short Term (2)	Long-Term (3)	Permanent (4)
Mine Haul Roads	102.3	0	102.3	0	0
Road Berms & Fill	31.1	0	31.1	0	0
Light Vehicle Access Roads	17.4	0	0	17.4	0
ISR Well Roads	-	0	-	-	0
ISR Well Pads	-	0	-	-	0
A Dump WRS	135.1	0	135.1	0	0
B Dump WRS	100.6	0	100.6	0	0
C Dump WRS	258.0	0	258	0	0
Lone Wolf WRS	256.9	0	256.9	0	0

	Total Disturbance Acres	Temporary (1)	Short Term (2)	Long-Term (3)	Permanent (4)
Centennial Pit (un-backfilled)	101.8	0	0	0	101.8
Centennial Backfill Area	141.4	0	141.4	0	0
GTO Pit	48.0	0	0	0	48
Lone Wolf Pit (un-backfilled)	169.4	0	0	0	169.4
Lone Wolf Backfill Area	376.9	0	376.9	0	0
LVM Leach Pad	389.3	0	389.3	0	0
LLV Leach Pad	243.5	0	243.5	0	0
LVM Process Area	29.3	0	25	4.3	0
LVM Process Ponds	29.8	0	0	24.4	5.4
LLV Process Ponds	23.8	0	0	0	23.8
Fresh Water Ponds	31.0	0	0	0	31.0
Growth Media Stockpiles	143.2	0	143.2	0	0
LP Capping Borrow Material	17.2	0	17.2	0	0
Admin Area	5.1	0	0	5.1	0
Crusher Yard	31.4	0	31.4	0	0
Laydown Yards	11.0	0	11	0	0
Equipment Lineup & Truckshop	10.4	0	10.4	0	0
Drainage Control Features	72.6	0	0	0	72.6
Natural Gas Line Re-Route	2.4	0	0	0	2.4
Ore Conveyor	2.0	0	2	0	0
Solution Pipeline	8.1	0	0	8.1	0
TOTAL	**2,789.0**	**-**	**2,275.3**	**59.3**	**454.4**

(1) Temporary: any disturbance with an anticipated duration of less than the duration of the Project
(2) Short-Term: any disturbance that would last for the duration of the Project
(3) Long-Term: any disturbance that would last for a period following reclamation of the Project
(4) Permanent: any disturbance that would be permanent

The anticipated permanent disturbance which would occur on public lands is approximately 271.1 acres.

2.2 Operating Plan & Process Design

The Operating plan for the Alternative B is as follows:

The Company will continue to extract the remaining copper resources in the current open pits within the Active Mine Plan Boundary.

As the open pit mining activities continue within the Active Mine Plan Boundary, the Company will initiate construction of the expanded LVM HLP and LLV facilities. These facilities will include the construction and installation of the following facilities:

- HLP lined containment and solution ditches;

- Process ponds;
- Water lines;
- Solution lines;
- Installation of additional monitor wells;
- Ancillary facilities; and
- Improvement of access roads;

Topsoil removal related to the construction activities is anticipated to be stored in designated topsoil stockpiles. Soils surveys are performed prior to disturbance in order to classify the depth of salvageable soils. The results of the soil surveys will direct the Company in the depth of soil that is salvageable, and also the type of soil that is being salvaged and thus build an appropriate interim seed mix for seeding the topsoil stockpiles during their existence for the extent of the life of the operations.

Open Pit Mining

Open pit mining is anticipated to occur in one open pit within the LLV Plan Boundary. This pit, called the "Lone Wolf Pit", has an estimated mineable resource of 98 million tons, containing 503 million pounds or more of total copper, of which 401 million pounds is expected to be recovered through standard heap leaching methods. The mine design for the Lone Wolf pit would utilize one initial waste dump for the removal of overburden, with the remainder of the waste used to backfill the pit as mining continues. The anticipated amount of overburden to be removed and stockpiled in the Lone Wolf WRS is 152 million tons. The anticipated amount of overburden to be used to backfill the Lone Wolf Pit is 252 million tons. The amount of material to be backfilled is largely dependent upon the geochemistry of the rock types encountered, as summarized in the Company's Waste Rock Management Plan.

As is currently employed within the Active Mine Plan Boundary, open pit mining will be performed by conventional open pit mining methods. Ore and waste are drilled, blasted, loaded and hauled by front end loaders and haul trucks. Ore will then be stockpiled at a crushing facility, where the ore will be crushed to minus 3 inch. The ore will then be conveyed via overland conveyor and stacked directly on the LLV HLP following strict ore control procedures. The mine operates on a schedule of one or two 12-hour shifts per day, seven days per week, and 52 weeks per year depending on market conditions and mine plan. The Company's equipment fleet will be sized to meet a production rate of up to 100,000 tons per day.

Waste from the mining activities are either placed as in-pit backfill, or hauled to designated Lone Wolf WRS facility. The waste is categorized by geologic bed, which is then correlated to the Company's comprehensive database of geochemical properties for the different geologic beds that occur within the localized geographical region. The type of waste that is encountered during active mining is segregated by bed and geochemical properties and placed in the appropriate location per the Company's existing Waste Rock Management Plan.

Ore from the LLV mining activities is conveyed and stacked on the LLV HLP or the LVM HLP. Solution from the treatment of the ore on the LLV HLP and LVM HLP will be stored in designated process ponds where the solution will either be recycled back onto the LLV HLP (as ILS) or piped to the existing process facilities for final beneficiation (as PLS).

As with the construction phase, initial disturbance related to the open pit, WRS, HLP, and associated ponds will include the removal and storage of topsoil in designated topsoil stockpiles.

ISR

Under Alternative B, no ISR activities would occur.

Ancillary Facilities & Vehicle Maintenance

Due to the Company's existing onsite facilities, minimal disturbance related to ancillary facilities and workshops for vehicle maintenance is anticipated. The Company plans on using all of its existing buildings and its SX/EW plant for the duration of the LLV LOM. The Company anticipates expanding the existing Solvent Extraction unit an additional cell, which would have an overall footprint of less than one acre, and would be installed adjacent to the already-existing Solvent Extraction cells.

Exploration

As mining continues by open pit and ISR methods, exploration will continue within the LLV Plan Boundary. Exploration activities would concur with the existing Exploration Plan.

2.3 Alternative B Figures

Figure B-1 Overall Planned Disturbance

3.0 Alternative C

3.1 Description of Operations

Under Alternative C, the Company would continue to operate the existing open pits within the Active Mine Plan Boundary, and perform ISR operations within the GTO deposit and the Lone Wolf deposit. No open pit mining would be performed within the LLV. The Company would also continue its exploration of copper ores under their Exploration Plan, and potentially expand the ISR wellfields within the LLV accordingly.

The proposed activities that would occur within the Active Mine Plan Boundary and LLV Plan Boundary under Alternative C, in addition with ongoing exploration, would include the following components:

- Open pits;
- Waste rock storage (WRS);
- Storm water diversion channels, sediment basins, and berms;
- Heap leach pad (HLP);
- Solution pipelines;
- Access roads;
- Exploration activities; and
- Ancillary facilities including: power supply; reagent, fuel, ready line; crushing area and related stockpiles; area for temporary storage of petroleum-contaminated soils; ground water monitoring wells; water supply pipeline and facilities; and construction laydown yards.

Table 3-1: Anticipated Disturbance for the LLV Alternative C

Mine Component	Total Disturbance	Private	BLM	SITLA
Roads (acres)				
Mine Haul Roads	40.5	15.4	15.4	9.7
Road Berms & Fill	28.5	8.4	8.2	11.9
Light Vehicle Access Roads	15.0	1.8	11.6	1.7
ISR Well Roads	98.5	5.9	88.7	3.9
ISR Well Pads	41.3	2.5	37.2	1.7
Subtotal	**223.9**	**34.0**	**161.0**	**28.8**
Leach Pad, Mine Pit, Waste Rock Dump, Borrow Area, Ponds, Stockpiles (acres)				
A Dump WRS	135.1	-	87.7	47.4
B Dump WRS	100.6	-	-	100.6
C Dump WRS	258.0	-	258.0	-
Lone Wolf WRS	-	-	-	-
Centennial Pit (un-backfilled)	101.8	-	97.2	4.6
Centennial Backfill Area	141.4	-	35.1	106.3
GTO Pit	48.0	-	6.4	41.6
Lone Wolf Pit (un-backfilled)	-	-	-	-
Lone Wolf Backfill Area	-	-	-	-
LVM Leach Pad	274.1	174.1	100.0	-
LLV Leach Pad	-	-	-	-
LVM Process Area	29.3	8.7	20.6	-
LVM Process Ponds	29.8	29.8	-	-
LLV Process Ponds	19.5	9.5	10.0	-
Fresh Water Ponds	14.8	5.5	1.2	8.1
Growth Media Stockpiles	56.2	10.4	21.8	24.0
LP Capping Borrow Material	17.2	16.7	0.5	-
Subtotal	**1,225.8**	**254.7**	**638.5**	**332.6**
Yards (acres)				
Admin Area	5.1	-	5.1	-
Crusher Yard	-	-	-	-
Laydown Yards	11.0	4.2	6.8	-
Equipment Lineup & Truckshop	10.4	-	10.4	-
Yards Subtotal	**26.5**	**4.2**	**22.3**	**-**

Linear Features (acres (see project notes))				
Drainage Control Features	52.8	17.8	25.4	9.6
Natural Gas Line Re-Route	1.8	-	1.2	0.6
Ore Conveyor	-	-	-	-
Solution Pipeline	13.1	5.1	3.4	4.6
Subtotal	**67.7**	**22.9**	**30.0**	**14.8**
Project Total	**1,543.9**	**315.8**	**851.9**	**376.2**

PROJECT NOTES	
Haul Road Width (ft)	100
Light Vehicle Road Width (ft)	30
Ore Conveyor width (ft)	15
ISR Well Road Width (ft)	20
ISR Well Pad square footage	900
Solution Pipeline corridor Width (ft)	20
Average Drainage Control Width (ft)	20
Natural Gas Line Re-route width (ft)	10

The Alternative C has an anticipated mine life of up to 17 years, with an additional 10 years for reclamation and closure.

Of the anticipated disturbance, only a fraction would be considered permanent. Table 3-2 summarizes the proposed disturbances by anticipated duration:

Table 3-2: Anticipated Disturbance Duration for the LLV Alternative C

	Total Disturbance Acres	Temporary (1)	Short Term (2)	Long-Term (3)	Permanent (4)
Mine Haul Roads	40.5	0	40.5	0	0
Road Berms & Fill	28.5	0	28.5	0	0
Light Vehicle Access Roads	15.0	0	0	15.0	0
ISR Well Roads	98.5	0	78.82	19.70	0
ISR Well Pads	41.3	0	33.06	8.26	0
A Dump WRS	135.1	0	135.1	0	0
B Dump WRS	100.6	0	100.6	0	0
C Dump WRS	258.0	0	258	0	0
Lone Wolf WRS	-	0	-	0	0
Centennial Pit (un-backfilled)	101.8	0	0	0	101.8
Centennial Backfill Area	141.4	0	141.4	0	0
GTO Pit	48.0	0	0	0	48
Lone Wolf Pit (un-backfilled)	-	0	0	0	-
Lone Wolf Backfill Area	-	0	-	0	0
LVM Leach Pad	274.1	0	274.1	0	0

	Total Disturbance Acres	Temporary (1)	Short Term (2)	Long-Term (3)	Permanent (4)
LLV Leach Pad	-	0	243.5	0	0
LVM Process Area	29.3	0	25	4.3	0
LVM Process Ponds	29.8	0	0	24.4	5.4
LLV Process Ponds	19.5	0	0	0	19.5
Fresh Water Ponds	14.8	0	0	0	14.8
Growth Media Stockpiles	56.2	0	56.2	0	0
LP Capping Borrow Material	17.2	0	17.2	0	0
Admin Area	5.1	0	0	5.1	0
Crusher Yard	-	0	31.4	0	0
Laydown Yards	11.0	0	11	0	0
Equipment Lineup & Truckshop	10.4	0	10.4	0	0
Drainage Control Features	52.8	0	0	0	52.8
Natural Gas Line Re-Route	1.8	0	0	0	2.4
Ore Conveyor	-	0	2	0	0
Solution Pipeline	13.1	0	0	13.1	0
TOTAL	**1,543.9**	**-**	**1,486.8**	**89.9**	**244.7**

(1) Temporary: any disturbance with an anticipated duration of less than the duration of the Project
(2) Short-Term: any disturbance that would last for the duration of the Project
(3) Long-Term: any disturbance that would last for a period following reclamation of the Project
(4) Permanent: any disturbance that would be permanent

The anticipated permanent disturbance which would occur on public lands is approximately 135 acres.

3.2 Operating Plan & Process Design

The Operating plan for the Alternative C is as follows:

The Company will continue to extract the remaining copper resources in the current open pits within the Active Mine Plan Boundary.

As the open pit mining activities continue within the Active Mine Plan Boundary, the Company will initiate construction of the ISR wellfields. This construction phase is anticipated to last anywhere from 6-12 months, and will include the construction and installation of the following facilities:

- Process ponds;
- Water lines;
- Solution lines;
- ISR Wellfields (injection wells, pump-back wells, monitor wells);
- Ancillary facilities and process facilities; and
- Improvement of access roads.

Topsoil removal related to the construction activities is anticipated to be stored in designated topsoil stockpiles. Soils surveys are performed prior to disturbance in order to classify the depth of salvageable soils. The results of the soil surveys will direct the Company in the depth of soil that is salvageable, and also the type of soil that is being salvaged and thus build an appropriate interim seed mix for seeding the topsoil stockpiles during their existence for the extent of the life of the operations.

ISR road and wellfield disturbance will result in windrowed topsoil berms that will be seeded with an interim seed mix following construction.

Open Pit Mining

Open pit mining will only continue within the already existing open pits within the Active Mine Plan Boundary.

Under Alternative C, no additional open pit mining is proposed. Is anticipated to occur in one open pit within the LLV Plan Boundary.

ISR

ISR activities will include the construction of access roads and well pads. The well pads will be constructed in an orthagonal or hexagonal grid-like pattern deemed a 'five-spot' in which there will be one injection well is production well is surrounded by centered within four to six production injection wells. An extension of this pattern develops a wellfield with approximately equal numbers of injection and extraction wells. Wells will be spaced with each injection well approximately 125-200 feet apart. from the next, and the production well centered in the middle of the injection well 'box'. Each well pad will have an estimated disturbance footprint of 50 feet by 50 feet. This disturbance would be temporary for the installation of the well and piping only. After the wells are drilled and installed, the pads would be reclaimed back to a size of 30 feet by 30 feet. Access roads would have an average width of 20 feet for standard roads, and 40 feet for roads with solution pipelines.

The Company projects construction of approximately 2,000 well pads spaced approximately 125-200 feet apart, with each alternating row of well pads offset laterally by an additional 50-75 feet in order to create the 'five-spot' pattern targeting copper recovery from the GTO and Lone Wolf copper deposits.

Also included with the proposed ISR project for GTO and Lone Wolf Extent would be the installation of monitor wells. The disturbance associated with the installation of the monitor wells would be similar to the well pads in initial and final disturbance footprints.

The location of the ISR well pads would be as follows:

- GTO Well Field = 150 well pads
- GTO Infill & Monitor Wells = 10 well pads
- Lone Wolf Well Field = 1,740 well pads
- Lone Wolf Infill & Monitor Wells = 100 well pads

Based on exploration drilling that has occurred within the LLV Plan Boundary, as well as the information known already about the GTO ore extent, the Company has engineered extractible resource estimates through the use of ISR technology. Additionally, the Company has performed numerous successful metallurgical studies on the projected recovery of the in-situ copper resource. The Company estimates the

combined ISR-only total-copper resource of the GTO and Lone Wolf deposits is +845 million pounds, of which approximately 528 million pounds is estimated to be extractable by ISR methods.

Ancillary Facilities & Vehicle Maintenance

Due to the Company's existing onsite facilities, minimal disturbance related to ancillary facilities and workshops for vehicle maintenance is anticipated. The Company plans on using all of its existing buildings and its SX/EW plant for the duration of the LLV LOM. The Company anticipates expanding the existing Solvent Extraction unit an additional cell, which would have an overall footprint of less than one acre, and would be installed adjacent to the already-existing Solvent Extraction cells.

Exploration

As mining continues by open pit and ISR methods, exploration will continue within the LLV Plan Boundary. Exploration activities would concur with the existing Exploration Plan.

3.3 Alternative C Figures

Figure C-1 Overall Planned Disturbance

4.0 Alternative D

4.1 Description of Operations

Under Alternative D, the Company would not perform any open pit mining or ISR operations within the LLV. Instead, the Company would continue its exploration of copper ores under their existing Exploration Plan. Under this Alternative, mining would continue within the Active Mine Plan Boundary. Upon exhaustion of the reserves contained within the Active Mine Plan Boundary, the Company would initiate closure and reclamation. The overall life of mine for Alternative D would be 5 years of mining and 10 years of closure/reclamation.

4.2 Operating Plan & Process Design

Open Pit Mining

Under Alternative D, no open pit mining would occur beyond what is already stated in the Company's Notice of Intent for Large Mining Operations.

ISR

Under Alternative D, no ISR activities would occur.

Ancillary Facilities & Vehicle Maintenance

Under Alternative D, no disturbance related to ancillary facilities, etc. would occur beyond what is already stated in the Company's Record of Decision.

Exploration

Under Alternative D, exploration will continue within the LLV Plan Boundary. Exploration activities would concur with the existing Exploration Plan.

5.0 Comparison of Alternatives

A brief comparison of alternatives as they relate to disturbance and overall mine life/production is summarized below. Detailed reviews of the environmental resource by Alternative can be found within the Environmental Resource Appendices C through R.

5.1 Overall Disturbance Comparison

Existing disturbance within the Active Mine Plan Boundary is **1,138 acres** (LVMC NOI for LMO, 2021).

Existing exploration disturbance within the LLV Plan Boundary is **36 acres** (LVMC Exploration Permit, 2022).

Therefore, for the purpose of this comparison, a baseline disturbance amount of **1,174 acres** is assumed.

Table 5-1: Disturbance Comparison by Alternative

Mine Component	Alternative A Disturbance	Alternative B Disturbance	Alternative C Disturbance	No Action Alternative Disturbance
Roads (acres)				
Mine Haul Roads	80.1	102.3	40.5	40.5
Road Berms & Fill	31.1	31.1	28.5	28.5
Light Vehicle Access Roads	18.5	17.4	15.0	12.2
ISR Well Roads	40.5	-	98.5	-
ISR Well Pads	16.5	-	41.3	-
Subtotal	**186.7**	**150.8**	**223.9**	**81.2**
Leach Pad, Mine Pit, Waste Rock Dump, Borrow Area, Ponds, Stockpiles (acres)				
A Dump WRS	135.1	135.1	135.1	135.1
B Dump WRS	100.6	100.6	100.6	100.6
C Dump WRS	258.0	258.0	258.0	258.0
Lone Wolf WRS	54.6	256.9	-	-
Centennial Pit (un-backfilled)	101.8	101.8	101.8	101.8
Centennial Backfill Area	141.4	141.4	141.4	141.1
GTO Pit	48.0	48.0	48.0	48.0
Lone Wolf Pit (un-backfilled)	72.4	169.4	-	-
Lone Wolf Backfill Area	362.8	376.9	-	-
LVM Leach Pad	321.4	389.3	274.1	274.1
LLV Leach Pad	141.3	243.5	-	-
LVM Process Area	33.3	29.3	29.3	29.3
LVM Process Ponds	29.8	29.8	29.8	29.8
LLV Process Ponds	43.8	23.8	19.5	-
Fresh Water Ponds	21.3	31.0	14.8	14.8
Growth Media Stockpiles	133.7	143.2	56.2	56.2
LP Capping Borrow Material	17.2	17.2	17.2	17.2
Subtotal	**2,016.5**	**2,495.2**	**1,225.8**	**1,206.0**

Mine Component	Alternative A Disturbance	Alternative B Disturbance	Alternative C Disturbance	No Action Alternative Disturbance
Yards (acres)				
Admin Area	5.1	5.1	5.1	5.1
Crusher Yard	52.3	31.4	-	-
Laydown Yards	11.0	11.0	11.0	11.0
Equipment Lineup & Truckshop	10.4	10.4	10.4	10.4
Yards Subtotal	**78.8**	**57.9**	**26.5**	**26.5**
Linear Features (acres (see project notes))				
Drainage Control Features	63.5	72.6	52.8	52.8
Natural Gas Line Re-Route	2.4	2.4	1.8	1.8
Ore Conveyor	2.0	2.0	-	-
Solution Pipeline	16.7	8.1	13.1	-
Subtotal	**84.6**	**85.1**	**67.7**	**54.6**
Project Total	**2,366.7**	**2,789.0**	**1,543.9**	**1,368.3**
Less existing disturbance	(1,174.0)	(1,174.0)	(1,174.0)	(1,174.0)
Proposed NEW Disturbance	**1,192.7**	**1,615.0**	**369.9**	**194.3**

Alternative A New Disturbance = 1,192.7 acres

Alternative B New Disturbance = 1,615.0 acres

Alternative C New Disturbance = 369.9 acres

Alternative D New Disturbance = 194.3 acres*

*Alternative D New Disturbance would conform with what is already approved in the Company's 1997 ROD, and includes the expansion of the Company's LVM HLP for Stage 4.

Only evaluating the Alternatives from the viewpoint of surface disturbance, the No Action Alternative would be the most favorable, with Alternative C being the second choice.

5.2 Life of Mine Comparison

Alternative A Life of Mine = 20 years

Alternative B Life of Mine = 20 years

Alternative C Life of Mine = 17 years

Alternative D Life of Mine = 5 years

Only evaluating the Alternatives from the viewpoint of Life of Mine, Alternative A would be the most favorable, with Alternative B being the second choice.

5.3 Copper Production Comparison

Alternative A Copper Production = 620 million pounds

82 million pounds of copper produced from the existing open pit Active Mine area
267 million pounds of copper produced from LLV open pit mining
271 million pounds of copper produced from ISR operations

Alternative B Copper Production = 483 million pounds

82 million pounds of copper produced from the open pit existing Active Mine area
401 million pounds of recoverable copper from LLV open pit mining

Alternative C Copper Production = 610 million pounds

82 million pounds of copper produced from the existing open pit Active Mine area
528 million pounds of copper produced from ISR operations

Alternative D Copper Production = 82 million pounds

82 million pounds of copper produced from the existing open pit Active Mine area

Only evaluating the Alternatives from the viewpoint of recoverable copper, Alternative A would be the most favorable, with Alternative C being the second choice.

5.4 Overall Economic Comparison

Due to the streamlined production schedule offered in Alternative A, which includes a combination of open pit and ISR mining, this alternative is not only maximizing copper recovery, it is also ensuring that the copper reaches the commodity market in a timely manner. As will be detailed in the following appendices, Alternative A (Proposed Action) is the most favorable of the four alternatives presented.

Employee Base per Alternative				
Alternative	Life of Mine (years)	Average Employee Count	Reclamation Duration (years)	Average Employee Count
Alternative B	20	180	10	30

Alternative B Copper Production = 483 million pounds
82 million pounds of copper produced from the open pit existing Active Mine area
401 million pounds of recoverable copper from LLV open pit mining

Legend

- Drainage Features
- Surface Water Features (B)
- Storm Event Ponds (B)
- Cattle Guard
- Solution Pipeline
- Conveyor (B)
- Road Berms & Fill (B)
- Natural Gas Line Re-route (B)
- Light Vehicle Access (B)
- Mine Haul Roads (B)
- Waste Rock Storage (B)
- Mine Pit Areas (B)
- In-Pit Backfilling (B)
- Heap Leach Pads (B)
- Process Area (B)
- Process Ponds (B)
- Admin Area (B)
- Crusher Yard (B)
- Laydown Yard (B)
- Equipment Lineup & Truckshop (B)
- Growth Media Stockpiles (B)
- LP Capping Borrow Material (B)
- LVMC_Active_Project_Boundary
- LLV_Plan_Boundary

LandOwnership

OWNER

- Federal
- Private
- State

NAIP2021_SanJuan_RGB.sid

RGB

- Red: Band_1
- Green: Band_2
- Blue: Band_3

0 1 2 3 4 Miles

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FIGURE B-1
Proposed Activities (Alt B)

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Employee Base per Alternative				
Alternative	Life of Mine (years)	Average Employee Count	Reclamation Duration (years)	Average Employee Count
Alternative C	17	80	10	15

Alternative C Copper Production = 610 million pounds
82 million pounds of copper produced from the existing open pit Active Mine area
528 million pounds of copper produced from ISR operations

Legend

- Heap Leach Pad(C)
- Solution Pipeline (C)
- Mine Haul Roads (C)
- Light Vehicle Access (C)
- Road Berms & Fill (C)
- Waste Rock Storage (C)
- Mine Pit Areas (C)
- In-Pit Backfilling (C)
- Process Area (C)
- Process Ponds (C)
- Admin Area (C)
- Laydown Yard (C)
- Equipment Lineup & Truckshop (C)
- Growth Media Stockpiles (C)
- LP Capping Borrow Material (C)
- LVMC_Active_Project_Boundary
- LLV_Plan_Boundary

LandOwnership

OWNER

- Federal
- Private
- State
- ISR_Wellfield_Roads_(C)

0 1 2 3 4 Miles

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FIGURE C-1
Proposed Activities (Alt C)

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